

Gar6more2D

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Chapter 1

Presentation

This code compute the quasi-analytical solution of several wave equation in two layered media, using the Cagniard de Hoop method [1, 2, 9, 8, 7, 3, 5, 4]. It produces seismograms at given points.

The equations can be written in the general form.

$$A(y) \frac{\partial^2 U}{\partial t^2} - B(y)U = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y \in \mathbb{R} \quad (1.0.1)$$

where A and B are operators satisfying

$$\begin{aligned} A(y) &= A^+, B(y) = B^+, & y > 0, \\ A(y) &= A^-, B(y) = B^-, & y < 0. \end{aligned}$$

The code analytically compute the Green function u of the problem

$$A(y) \frac{\partial^2 u}{\partial t^2} - B(y)u = \delta(\mathbf{x} - \mathbf{x}_s) \delta(t), \quad x \in \mathbb{R}, y \in \mathbb{R} \quad (1.0.2)$$

and convolves it with the source function f . You can modify this function in the subroutine *lib/libgeneral/source.F90*. The convolution is done by a numerical integration, that is why the solution is only “quasi-analytical”. You can improve the accuracy of the solution by increasing the number of intervals used for the integration (the variable $Nint$ in the data file *Gar6more2D.dat*)

1.1 Acoustic

The code computes a seismogram at points $(x_i, y)_{i=1, N_x}$ of the pressure solution of the equations (in the following $\mathbf{x}_s = (0, h)$)

1. (Infinite Medium)

$$\frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta P^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad (x, y) \in \mathbb{R}^2.$$

2. (Free Boundary Condition)

$$\frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta P^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y > 0,$$

with the boundary condition

$$P^+ = 0 \quad x \in \mathbb{R}, y = 0.$$

3. (Wall Boundary Condition)

$$\frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta P^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y > 0,$$

with the boundary condition

$$\frac{\partial P^+}{\partial y} = 0 \quad x \in \mathbb{R}, y = 0.$$

4. (Bilayered Medium)

$$\frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta P^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y > 0,$$

$$\frac{\partial^2 P^-}{\partial t^2} - c^{-2} \Delta P^- = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y < 0,$$

with the transmission conditions

$$\left| \begin{array}{l} P^+ = P^-, \\ \rho^+ \frac{\partial P^-}{\partial y} = \rho^- \frac{\partial P^+}{\partial y}, \quad x \in \mathbb{R}, y = 0. \end{array} \right.$$

The code also computes the velocity given by the relation :

$$\frac{\partial \mathbf{V}^\pm}{\partial t} = -\frac{1}{\rho^\pm} \nabla P^\pm.$$

If you want to compute the displacement U , it can be easily computed by replacing $f(t)$ by the primitive of the source function you are using. For instance, if you are using a Rickert, you'll have to consider a first derivative of a Gaussian for f .

1.2 Acoustic/elastodynamic (isotropic)

The code computes a seismogram at point $(x_i, y)_{i=1, N_x}$ of the pressure (in the fluid) and the velocity (in the solid) solution of the equations

$$\frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta P^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \quad x \in \mathbb{R}, y > 0, \quad (1.2.1)$$

$$\frac{\partial^2 \mathbf{V}^-}{\partial t^2} - (\lambda^- + 2\mu^-) \nabla(\nabla \cdot \mathbf{V}) + \mu^- \nabla \times (\nabla \times \mathbf{V}^-) = 0, \quad x \in \mathbb{R}, y < 0, \quad (1.2.2)$$

with $\mathbf{x}_s = (0, h)$ and the transmission conditions

$$\left| \begin{array}{l} \frac{\partial V_y^-}{\partial t} = -\frac{1}{\rho^+} \frac{\partial P^+}{\partial y}, \quad y = 0, \\ (\lambda^- + 2\mu^-) \frac{\partial V_y^-}{\partial y} + \lambda^- \frac{\partial V_x^-}{\partial x} = \frac{\partial P^+}{\partial t} \\ \frac{\partial V_x^-}{\partial y} + \frac{\partial V_y^-}{\partial x} = 0. \end{array} \right.$$

on the interface $y = 0$. The code also computes the velocity in the fluid by using the relation

$$\frac{\partial V^+}{\partial t} = -\frac{1}{\rho^+} \nabla P^+.$$

Once again, if you want to compute the displacement U , it can be easily computed by replacing $f(t)$ by the primitive of the source function you are using.

1.3 Acoustic/poroelastic (see [5])

The code computes a seismogram at point $(x_i, y)_{i=1, N_x}$ of the pressure P^+ and the displacement U^+ (in the fluid) and the solid displacement U_s^- (in the poroelastic medium) solution of the equations

$$\begin{cases} \frac{\partial^2 P^+}{\partial t^2} - c^{+2} \Delta \chi^+ = \delta(\mathbf{x} - \mathbf{x}_s) f(t), \\ \frac{\partial^2 U^+}{\partial t^2} = -\frac{1}{\rho^+} \nabla P^+. \end{cases}$$

for $x \in \mathbb{R}, y > 0$ and

$$\begin{cases} (1 - \phi^-) \rho_s^- \frac{\partial^2 \mathbf{U}_s^-}{\partial t^2} + \phi \rho_f^- \frac{\partial^2 \mathbf{U}_f^-}{\partial t^2} - (\lambda^- + 2\mu^-) \nabla(\nabla \cdot \mathbf{U}_s^-) + \mu^- \nabla \times (\nabla \times \mathbf{U}_s^-) + \beta \nabla P^- = 0, \\ (1 - a^-) \rho_f^- \frac{\partial^2 \mathbf{U}_s^-}{\partial t^2} + a^- \rho_f^- \frac{\partial^2 \mathbf{U}_f^-}{\partial t^2} + \nabla P^- = 0 \\ \frac{1}{m^-} P^- + (\beta^- - \phi^-) \nabla \cdot \mathbf{U}_s^- + \phi^- \nabla \cdot \mathbf{U}_f^- = 0 \end{cases}$$

for $x \in \mathbb{R}, y < 0$, either with the open pore transmission conditions (if parameter open is set to 1 in Gar6more2D.dat))

$$\begin{cases} \phi^- (U_{fy}^- - U_{sy}^-) = U_y^+ - U_{sy}^-, \\ P^- = P^+, \\ (\lambda^- + m^- \beta^- (\beta^- - \phi^-)) \nabla \cdot \mathbf{U}_s^- + 2\mu^- \frac{\partial U_{sy}^-}{\partial y} + m^- \beta^- \phi^- \nabla \cdot \mathbf{U}_f^- = -P^+, \\ \frac{\partial U_{sx}^-}{\partial y} + \frac{\partial U_{sy}^-}{\partial x} = 0, \end{cases}$$

or with the sealed pore transmission conditions (if parameter open is set to 0 in Gar6more2D.dat))

$$\begin{cases} \phi^- (U_{fy}^- - U_{sy}^-) = U_y^+ - U_{sy}^-, \\ U_{fy}^- = U_{sy}^-, \\ (\lambda^- + m^- \beta^- (\beta^- - \phi^-)) \nabla \cdot \mathbf{U}_s^- + 2\mu^- \frac{\partial U_{sy}^-}{\partial y} + m^- \beta^- \phi^- \nabla \cdot \mathbf{U}_f^- = -P^+, \\ \frac{\partial U_{sx}^-}{\partial y} + \frac{\partial U_{sy}^-}{\partial x} = 0, \end{cases}$$

on the interface $y = 0$. The code does not compute the fluid displacement and the pressure in the poroelastic medium, but there is no particular difficulty to do that.

1.4 Elastodynamic

The code computes a seismogram at points $(x_i, y)_{i=1, N_x}$ of the velocity solution of the equations (in the following $\mathbf{x}_s = (0, h)$)

1. (Infinite Medium)

$$\frac{\partial^2 \mathbf{V}^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{V}^+) + \mu^+ \nabla \times (\nabla \times \mathbf{V}^+) = F(\mathbf{x}, t), \quad \mathbf{x} \in \mathbb{R}^2.$$

with

$$F(\mathbf{x}, t) = \nabla \delta(\mathbf{x} - \mathbf{x}_s) f_P(t) + \nabla \times \delta(\mathbf{x} - \mathbf{x}_s) f_S(t)$$

The first term of F represents a P -source while the second one represents a S -source.

2. (Free Boundary Condition)

$$\frac{\partial^2 \mathbf{V}^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{V}^+) + \mu^+ \nabla \times (\nabla \times \mathbf{V}^+) = F(\mathbf{x}, t), \quad x \in \mathbb{R}, y > 0.$$

with the boundary conditions

$$\frac{\partial V_y^+}{\partial y} = 0 \text{ and } \frac{\partial V_x^+}{\partial y} + \frac{\partial V_y^+}{\partial x} = 0 \quad x \in \mathbb{R}, y = 0.$$

3. (Wall Boundary Condition)

$$\frac{\partial^2 \mathbf{V}^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{V}^+) + \mu^+ \nabla \times (\nabla \times \mathbf{V}^+) = F(\mathbf{x}, t), \quad x \in \mathbb{R}, y > 0.$$

with the boundary condition

$$\mathbf{V}^+ = 0 \quad x \in \mathbb{R}, y = 0.$$

4. (Bilayered Medium)

$$\frac{\partial^2 \mathbf{V}^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{V}^+) + \mu^+ \nabla \times (\nabla \times \mathbf{V}^+) = F(\mathbf{x}, t), \quad x \in \mathbb{R}, y > 0,$$

$$\frac{\partial^2 \mathbf{V}^-}{\partial t^2} - (\lambda^- + 2\mu^-) \nabla(\nabla \cdot \mathbf{V}^-) + \mu^- \nabla \times (\nabla \times \mathbf{V}^-) = 0, \quad x \in \mathbb{R}, y < 0,$$

with the transmission conditions

$$\left| \begin{array}{l} V^+ = V^-, \\ (\lambda^+ + 2\mu^+) \frac{\partial V_y^+}{\partial y} = (\lambda^- + 2\mu^-) \frac{\partial V_y^-}{\partial y}, \\ \mu^+ \left(\frac{\partial V_x^+}{\partial y} + \frac{\partial V_y^+}{\partial x} \right) = \mu^- \left(\frac{\partial V_x^-}{\partial y} + \frac{\partial V_y^-}{\partial x} \right), \quad x \in \mathbb{R}, y = 0. \end{array} \right.$$

Once again, if you want to compute the displacement U , it can be easily computed by replacing $f(t)$ by the primitive of the source function you are using.

1.5 Poroelastic (see [4])

The code computes a seismogram at point $(x_i, y)_{i=1, N_x}$ of the solid displacement U_s solution of the equations (in the following $\mathbf{x}_s = (0, h)$)

1. (Infinite Medium)

$$\left\{ \begin{aligned} (1 - \phi^+) \rho_s^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + \phi^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{U}_s^+) + \mu^+ \nabla \times (\nabla \times \mathbf{U}_s^+) + \beta^+ \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t), \\ (1 - a^+) \rho_f^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + a^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} + \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t) \\ \frac{1}{m^+} P^+ + (\beta^+ - \phi^+) \nabla \cdot \mathbf{U}_s^+ + \phi^+ \nabla \cdot \mathbf{U}_f^+ &= \delta(\mathbf{x} - \mathbf{x}_s) F_p(t) \end{aligned} \right.$$

for $(x, y) \in \mathbb{R}^2$. Actually the code computes the solution for each source F_s and F_p separately. If you want a bulk source (F_s), set the parameter *type_source* to 1, if you want a pressure source (F_p), set the parameter *type_source* to 2.

2. (Wall Boundary Condition)

$$\left\{ \begin{aligned} (1 - \phi^+) \rho_s^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + \phi^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{U}_s^+) + \mu^+ \nabla \times (\nabla \times \mathbf{U}_s^+) + \beta^+ \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t), \\ (1 - a^+) \rho_f^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + a^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} + \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t) \\ \frac{1}{m^+} P^+ + (\beta^+ - \phi^+) \nabla \cdot \mathbf{U}_s^+ + \phi^+ \nabla \cdot \mathbf{U}_f^+ &= \delta(\mathbf{x} - \mathbf{x}_s) F_p(t) \end{aligned} \right.$$

for $x \in \mathbb{R}, y > 0$, with the boundary conditions

$$U_{fy}^+ - U_{sy}^+ = 0 \text{ and } U_s^+ = 0, \quad x \in \mathbb{R}, y = 0.$$

3. (Free Boundary Condition)

$$\left\{ \begin{aligned} (1 - \phi^+) \rho_s^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + \phi^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{U}_s^+) + \mu^+ \nabla \times (\nabla \times \mathbf{U}_s^+) + \beta^+ \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t), \\ (1 - a^+) \rho_f^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + a^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} + \nabla P^+ &= \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t) \\ \frac{1}{m^+} P^+ + (\beta^+ - \phi^+) \nabla \cdot \mathbf{U}_s^+ + \phi^+ \nabla \cdot \mathbf{U}_f^+ &= \delta(\mathbf{x} - \mathbf{x}_s) F_p(t) \end{aligned} \right.$$

for $x \in \mathbb{R}, y > 0$, with the boundary conditions

$$\left\{ \begin{aligned} \alpha^+ \nabla \cdot \mathbf{U}_s^+ + 2\mu^+ \frac{\partial U_{sy}^+}{\partial y} + m^+ \beta^+ \phi^+ \nabla \cdot \mathbf{U}_f^+ &= 0, \\ \frac{\partial U_{sx}^+}{\partial y} + \frac{\partial U_{sy}^+}{\partial x} &= 0, \\ P^+ &= 0, \end{aligned} \right.$$

for $x \in \mathbb{R}, y = 0$, with

$$\alpha^\pm = \lambda^\pm + m^\pm \beta^\pm (\beta^\pm - \phi^\pm).$$

4. (Bilayered Medium)

$$\left\{ \begin{array}{l} (1 - \phi^+) \rho_s^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + \phi^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} - (\lambda^+ + 2\mu^+) \nabla(\nabla \cdot \mathbf{U}_s^+) + \mu^+ \nabla \times (\nabla \times \mathbf{U}_s^+) + \beta^+ \nabla P^+ = \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t), \\ (1 - a^+) \rho_f^+ \frac{\partial^2 \mathbf{U}_s^+}{\partial t^2} + a^+ \rho_f^+ \frac{\partial^2 \mathbf{U}_f^+}{\partial t^2} + \nabla P^+ = \nabla \delta(\mathbf{x} - \mathbf{x}_s) F_s(t) \\ \frac{1}{m^+} P^+ + (\beta^+ - \phi^+) \nabla \cdot \mathbf{U}_s^+ + \phi^+ \nabla \cdot \mathbf{U}_f^+ = \delta(\mathbf{x} - \mathbf{x}_s) F_p(t) \end{array} \right.$$

for $x \in \mathbb{R}, y > 0$ and

$$\left\{ \begin{array}{l} (1 - \phi^-) \rho_s^- \frac{\partial^2 \mathbf{U}_s^-}{\partial t^2} + \phi^- \rho_f^- \frac{\partial^2 \mathbf{U}_f^-}{\partial t^2} - (\lambda^- + 2\mu^-) \nabla(\nabla \cdot \mathbf{U}_s^-) + \mu^- \nabla \times (\nabla \times \mathbf{U}_s^-) + \beta^- \nabla P^- = 0, \\ (1 - a^-) \rho_f^- \frac{\partial^2 \mathbf{U}_s^-}{\partial t^2} + a^- \rho_f^- \frac{\partial^2 \mathbf{U}_f^-}{\partial t^2} + \nabla P^- = 0 \\ \frac{1}{m^-} P^- + (\beta^- - \phi^-) \nabla \cdot \mathbf{U}_s^- + \phi^- \nabla \cdot \mathbf{U}_f^- = 0 \end{array} \right.$$

for $x \in \mathbb{R}, y < 0$, with the transmission conditions on the interface $y = 0$

$$\left\{ \begin{array}{l} \phi^- (U_{fy}^- - U_{sy}^-) = \phi^+ (U_{fy}^+ - U_{sy}^+), \\ \alpha^- \nabla \cdot \mathbf{U}_s^- + 2\mu^- \frac{\partial U_{sy}^-}{\partial y} + m^- \beta^- \phi^- \nabla \cdot \mathbf{U}_f^- = \alpha^+ \nabla \cdot \mathbf{U}_s^+ + 2\mu^+ \frac{\partial U_{sy}^+}{\partial y} + m^+ \beta^+ \phi^+ \nabla \cdot \mathbf{U}_f^+, \\ \mu^- \left(\frac{\partial U_{sx}^-}{\partial y} + \frac{\partial U_{sy}^-}{\partial x} \right) = \mu^+ \left(\frac{\partial U_{sx}^+}{\partial y} + \frac{\partial U_{sy}^+}{\partial x} \right), \\ U_{sx}^- = U_{sx}^+, \quad U_{sy}^- = U_{sy}^+, \quad P^- = P^+, \end{array} \right.$$

with

$$\alpha^\pm = \lambda^\pm + m^\pm \beta^\pm (\beta^\pm - \phi^\pm).$$

Remark 1.5.1 *The code does not really compute the displacement, but its derivative (for some reasons related to the Cagniard-de Hoop method, see [6, 4]). Therefore, you have to replace $f(t)$ by the primitive of the source function you are using to compute the displacement.*

Chapter 2

Data Type Index

2.1 Data Types List

Here are the data types with brief descriptions:

m_const	11
m_num	11
m_phys	12
m_result	18
m_sismo	19
m_source	20

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

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lib/libacousacous/acousacous.F90	24
lib/libacousacous/sub_incid_aa.F90	25
lib/libacousacous/sub_reflex_aa.F90	26
lib/libacousacous/sub_reflex_free_aa.F90	27
lib/libacousacous/sub_reflex_wall_aa.F90	28
lib/libacousacous/sub_transmit_aa.F90	29
lib/libacouselasto/acouselasto.F90	30
lib/libacouselasto/sub_incid_ae.F90	31
lib/libacouselasto/sub_reflex_ae.F90	31
lib/libacouselasto/sub_transmitp_ae.F90	32
lib/libacouselasto/sub_transmits_ae.F90	34
lib/libacousporo/acousporo.F90	35
lib/libacousporo/calccoeff_ap.F90	35
lib/libacousporo/sub_incid_ap.F90	36
lib/libacousporo/sub_reflex_ap.F90	36
lib/libacousporo/sub_transmitf_ap.F90	37
lib/libacousporo/sub_transmitpsi_ap.F90	39
lib/libacousporo/sub_transmits_ap.F90	40
lib/libelastoelasto/calccoeffP_ee.F90	41
lib/libelastoelasto/calccoeffS_ee.F90	41
lib/libelastoelasto/elastoelasto.F90	42
lib/libelastoelasto/sub_incidP_ee.F90	44
lib/libelastoelasto/sub_incidS_ee.F90	44
lib/libelastoelasto/sub_reflexPP_ee.F90	45
lib/libelastoelasto/sub_reflexPP_free_ee.F90	46
lib/libelastoelasto/sub_reflexPP_wall_ee.F90	47
lib/libelastoelasto/sub_reflexPS_ee.F90	48
lib/libelastoelasto/sub_reflexPS_free_ee.F90	50
lib/libelastoelasto/sub_reflexPS_wall_ee.F90	51
lib/libelastoelasto/sub_reflexSP_ee.F90	52
lib/libelastoelasto/sub_reflexSP_free_ee.F90	53
lib/libelastoelasto/sub_reflexSP_wall_ee.F90	54

lib/libelastoelasto/sub_reflexSS_ee.F90	55
lib/libelastoelasto/sub_reflexSS_free_ee.F90	56
lib/libelastoelasto/sub_reflexSS_wall_ee.F90	57
lib/libelastoelasto/sub_transmitPP_ee.F90	58
lib/libelastoelasto/sub_transmitPS_ee.F90	59
lib/libelastoelasto/sub_transmitSP_ee.F90	60
lib/libelastoelasto/sub_transmitSS_ee.F90	61
lib/libgeneral/arrivaltime.F90	63
lib/libgeneral/derivee.F90	63
lib/libgeneral/path.F90	63
lib/libgeneral/source.F90	64
lib/libporoporo/calccoeff_free_pp.F90	64
lib/libporoporo/calccoeff_pp.F90	65
lib/libporoporo/calccoeff_wall_pp.F90	65
lib/libporoporo/calccoeffs_free_pp.F90	65
lib/libporoporo/calccoeffs_pp.F90	65
lib/libporoporo/calccoeffs_wall_pp.F90	66
lib/libporoporo/poroporo.F90	66
lib/libporoporo/sub_incid_pp_f.F90	68
lib/libporoporo/sub_incid_pp_s.F90	68
lib/libporoporo/sub_reflexff_free_pp.F90	69
lib/libporoporo/sub_reflexff_pp.F90	70
lib/libporoporo/sub_reflexff_wall_pp.F90	71
lib/libporoporo/sub_reflexfpsi_free_pp.F90	72
lib/libporoporo/sub_reflexfpsi_pp.F90	74
lib/libporoporo/sub_reflexfpsi_wall_pp.F90	75
lib/libporoporo/sub_reflexfs_free_pp.F90	76
lib/libporoporo/sub_reflexfs_pp.F90	77
lib/libporoporo/sub_reflexfs_wall_pp.F90	79
lib/libporoporo/sub_reflexsf_free_pp.F90	80
lib/libporoporo/sub_reflexsf_pp.F90	81
lib/libporoporo/sub_reflexsf_wall_pp.F90	82
lib/libporoporo/sub_reflexspsi_free_pp.F90	83
lib/libporoporo/sub_reflexspsi_pp.F90	85
lib/libporoporo/sub_reflexspsi_wall_pp.F90	86
lib/libporoporo/sub_reflexss_free_pp.F90	87
lib/libporoporo/sub_reflexss_pp.F90	88
lib/libporoporo/sub_reflexss_wall_pp.F90	89
lib/libporoporo/sub_transmitff_pp.F90	90
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Chapter 4

Data Type Documentation

4.1 m_const Module Reference

Public Attributes

- real *8, save [pi](#)
- complex *16, save [ima](#)

4.1.1 Detailed Description

Definition at line 41 of file m_const.F90.

4.1.2 Member Data Documentation

4.1.2.1 complex*16, save m_const::ima

Definition at line 43 of file m_const.F90.

4.1.2.2 real*8, save m_const::pi

Definition at line 42 of file m_const.F90.

The documentation for this module was generated from the following file:

- [mod/m_const.F90](#)

4.2 m_num Module Reference

Public Attributes

- integer, save [nint](#)

4.2.1 Detailed Description

Definition at line 41 of file m_num.F90.

4.2.2 Member Data Documentation

4.2.2.1 integer, save m_num::nint

Definition at line 45 of file m_num.F90.

The documentation for this module was generated from the following file:

- [mod/m_num.F90](#)

4.3 m_phys Module Reference

Public Attributes

- integer, save [type_medium](#)
- integer, save [type_medium_1](#)
- integer, save [type_medium_2](#)
- integer, save [open](#)
- real *8, save [mu1](#)
- real *8, save [v1](#)
- real *8, save [rho1](#)
- real *8, save [mu2](#)
- real *8, save [v2](#)
- real *8, save [rho2](#)
- real *8, save [lambda2](#)
- real *8, save [vp2](#)
- real *8, save [vs2](#)
- real *8, save [vp1](#)
- real *8, save [rhof1](#)
- real *8, save [rhos1](#)
- real *8, save [phi1](#)
- real *8, save [a1](#)
- real *8, save [rhof2](#)
- real *8, save [rhos2](#)
- real *8, save [phi2](#)
- real *8, save [a2](#)
- real *8, save [vmax](#)
- real *8, save [rhow2](#)
- real *8, save [beta2](#)
- real *8, save [m2](#)
- real *8, save [la2](#)
- real *8, save [r2](#)
- real *8, save [ga2](#)
- real *8, save [s2](#)
- real *8, dimension(2, 2), save [aa2](#)

- real *8, dimension(2, 2), save [b2](#)
- real *8, dimension(2, 2), save [tt2](#)
- real *8, dimension(2, 2), save [p2](#)
- real *8, dimension(2), save [d2](#)
- real *8, save [vpsi2](#)
- real *8, save [vf2](#)
- real *8, save [rhow1](#)
- real *8, save [beta1](#)
- real *8, save [m1](#)
- real *8, save [la1](#)
- real *8, save [r1](#)
- real *8, save [ga1](#)
- real *8, save [s1](#)
- real *8, dimension(2, 2), save [aa1](#)
- real *8, dimension(2, 2), save [b1](#)
- real *8, dimension(2, 2), save [tt1](#)
- real *8, dimension(2, 2), save [p1](#)
- real *8, dimension(2), save [d1](#)
- real *8, save [vpsi1](#)
- real *8, save [vf1](#)
- real *8, save [vs1](#)
- real *8, save [lambda1](#)
- real *8, dimension(:,:), allocatable [ux](#)
- real *8, dimension(:,:), allocatable [uy](#)
- real *8, dimension(:,:), allocatable [p](#)

4.3.1 Detailed Description

Definition at line 41 of file m_phys.F90.

4.3.2 Member Data Documentation

4.3.2.1 real*8, save m_phys::a1

Definition at line 46 of file m_phys.F90.

4.3.2.2 real*8, save m_phys::a2

Definition at line 47 of file m_phys.F90.

4.3.2.3 real*8, dimension(2,2), save m_phys::aa1

Definition at line 50 of file m_phys.F90.

4.3.2.4 `real*8, dimension(2,2), save m_phys::aa2`

Definition at line 48 of file `m_phys.F90`.

4.3.2.5 `real*8, dimension(2,2), save m_phys::b1`

Definition at line 50 of file `m_phys.F90`.

4.3.2.6 `real*8, dimension(2,2), save m_phys::b2`

Definition at line 48 of file `m_phys.F90`.

4.3.2.7 `real*8, save m_phys::beta1`

Definition at line 50 of file `m_phys.F90`.

4.3.2.8 `real*8, save m_phys::beta2`

Definition at line 48 of file `m_phys.F90`.

4.3.2.9 `real*8, dimension(2), save m_phys::d1`

Definition at line 51 of file `m_phys.F90`.

4.3.2.10 `real*8, dimension(2), save m_phys::d2`

Definition at line 49 of file `m_phys.F90`.

4.3.2.11 `real*8, save m_phys::ga1`

Definition at line 50 of file `m_phys.F90`.

4.3.2.12 `real*8, save m_phys::ga2`

Definition at line 48 of file `m_phys.F90`.

4.3.2.13 `real*8, save m_phys::la1`

Definition at line 50 of file `m_phys.F90`.

4.3.2.14 `real*8, save m_phys::la2`

Definition at line 48 of file `m_phys.F90`.

4.3.2.15 real*8, save m_phys::lambda1

Definition at line 51 of file m_phys.F90.

4.3.2.16 real*8, save m_phys::lambda2

Definition at line 45 of file m_phys.F90.

4.3.2.17 real*8, save m_phys::m1

Definition at line 50 of file m_phys.F90.

4.3.2.18 real*8, save m_phys::m2

Definition at line 48 of file m_phys.F90.

4.3.2.19 real*8, save m_phys::mu1

Definition at line 45 of file m_phys.F90.

4.3.2.20 real*8, save m_phys::mu2

Definition at line 45 of file m_phys.F90.

4.3.2.21 integer, save m_phys::open

Definition at line 44 of file m_phys.F90.

4.3.2.22 real*8, dimension(:,), allocatable m_phys::p

Definition at line 52 of file m_phys.F90.

4.3.2.23 real*8, dimension(2,2), save m_phys::p1

Definition at line 51 of file m_phys.F90.

4.3.2.24 real*8, dimension(2,2), save m_phys::p2

Definition at line 49 of file m_phys.F90.

4.3.2.25 real*8, save m_phys::phi1

Definition at line 46 of file m_phys.F90.

4.3.2.26 real*8, save m_phys::phi2

Definition at line 47 of file m_phys.F90.

4.3.2.27 real*8, save m_phys::r1

Definition at line 50 of file m_phys.F90.

4.3.2.28 real*8, save m_phys::r2

Definition at line 48 of file m_phys.F90.

4.3.2.29 real*8, save m_phys::rho1

Definition at line 45 of file m_phys.F90.

4.3.2.30 real*8, save m_phys::rho2

Definition at line 45 of file m_phys.F90.

4.3.2.31 real*8, save m_phys::rhof1

Definition at line 46 of file m_phys.F90.

4.3.2.32 real*8, save m_phys::rhof2

Definition at line 47 of file m_phys.F90.

4.3.2.33 real*8, save m_phys::rhos1

Definition at line 46 of file m_phys.F90.

4.3.2.34 real*8, save m_phys::rhos2

Definition at line 47 of file m_phys.F90.

4.3.2.35 real*8, save m_phys::rhow1

Definition at line 50 of file m_phys.F90.

4.3.2.36 real*8, save m_phys::rhow2

Definition at line 48 of file m_phys.F90.

4.3.2.37 real*8, save m_phys::s1

Definition at line 50 of file m_phys.F90.

4.3.2.38 real*8, save m_phys::s2

Definition at line 48 of file m_phys.F90.

4.3.2.39 real*8, dimension(2,2), save m_phys::tt1

Definition at line 51 of file m_phys.F90.

4.3.2.40 real*8, dimension(2,2), save m_phys::tt2

Definition at line 49 of file m_phys.F90.

4.3.2.41 integer, save m_phys::type_medium

Definition at line 44 of file m_phys.F90.

4.3.2.42 integer, save m_phys::type_medium_1

Definition at line 44 of file m_phys.F90.

4.3.2.43 integer, save m_phys::type_medium_2

Definition at line 44 of file m_phys.F90.

4.3.2.44 real*8, dimension(:,), allocatable m_phys::ux

Definition at line 52 of file m_phys.F90.

4.3.2.45 real*8, dimension(:,), allocatable m_phys::uy

Definition at line 52 of file m_phys.F90.

4.3.2.46 real*8, save m_phys::v1

Definition at line 45 of file m_phys.F90.

4.3.2.47 real*8, save m_phys::v2

Definition at line 45 of file m_phys.F90.

4.3.2.48 `real*8, save m_phys::vf1`

Definition at line 51 of file `m_phys.F90`.

4.3.2.49 `real*8, save m_phys::vf2`

Definition at line 49 of file `m_phys.F90`.

4.3.2.50 `real*8, save m_phys::vmax`

Definition at line 47 of file `m_phys.F90`.

4.3.2.51 `real*8, save m_phys::vp1`

Definition at line 45 of file `m_phys.F90`.

4.3.2.52 `real*8, save m_phys::vp2`

Definition at line 45 of file `m_phys.F90`.

4.3.2.53 `real*8, save m_phys::vpsi1`

Definition at line 51 of file `m_phys.F90`.

4.3.2.54 `real*8, save m_phys::vpsi2`

Definition at line 49 of file `m_phys.F90`.

4.3.2.55 `real*8, save m_phys::vs1`

Definition at line 51 of file `m_phys.F90`.

4.3.2.56 `real*8, save m_phys::vs2`

Definition at line 45 of file `m_phys.F90`.

The documentation for this module was generated from the following file:

- [mod/m_phys.F90](#)

4.4 `m_result` Module Reference

Public Attributes

- `real *8, dimension(:,:), allocatable, save ux`

- real *8, dimension(:,:), allocatable, save [uy](#)
- real *8, dimension(:,:), allocatable, save [p](#)

4.4.1 Detailed Description

Definition at line 41 of file m_result.F90.

4.4.2 Member Data Documentation

4.4.2.1 `real*8, dimension(:,:), allocatable, save m_result::p`

Definition at line 45 of file m_result.F90.

4.4.2.2 `real*8, dimension(:,:), allocatable, save m_result::ux`

Definition at line 45 of file m_result.F90.

4.4.2.3 `real*8, dimension(:,:), allocatable, save m_result::uy`

Definition at line 45 of file m_result.F90.

The documentation for this module was generated from the following file:

- [mod/m_result.F90](#)

4.5 m_sismo Module Reference

Public Attributes

- integer, save [nx](#)
- integer, save [nt](#)
- real *8, save [x1](#)
- real *8, save [x2](#)
- real *8, save [y](#)
- real *8, save [t1](#)
- real *8, save [t2](#)
- real *8, save [dt](#)
- real *8, save [dx](#)

4.5.1 Detailed Description

Definition at line 41 of file m_sismo.F90.

4.5.2 Member Data Documentation

4.5.2.1 `real*8, save m_sismo::dt`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.2 `real*8, save m_sismo::dx`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.3 `integer, save m_sismo::nt`

Definition at line 44 of file `m_sismo.F90`.

4.5.2.4 `integer, save m_sismo::nx`

Definition at line 44 of file `m_sismo.F90`.

4.5.2.5 `real*8, save m_sismo::t1`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.6 `real*8, save m_sismo::t2`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.7 `real*8, save m_sismo::x1`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.8 `real*8, save m_sismo::x2`

Definition at line 45 of file `m_sismo.F90`.

4.5.2.9 `real*8, save m_sismo::y`

Definition at line 45 of file `m_sismo.F90`.

The documentation for this module was generated from the following file:

- [mod/m_sismo.F90](#)

4.6 `m_source` Module Reference

Public Attributes

- real *8, save [amp](#)
- real *8, save [ampp](#)
- real *8, save [amps](#)
- real *8, save [ampbulk](#)
- real *8, save [f0](#)
- real *8, save [h](#)
- real *8, save [f1](#)
- real *8, save [f2](#)
- real *8, save [tdelay](#)

4.6.1 Detailed Description

Definition at line 41 of file m_source.F90.

4.6.2 Member Data Documentation

4.6.2.1 real*8, save m_source::amp

Definition at line 45 of file m_source.F90.

4.6.2.2 real*8, save m_source::ampbulk

Definition at line 45 of file m_source.F90.

4.6.2.3 real*8, save m_source::ampp

Definition at line 45 of file m_source.F90.

4.6.2.4 real*8, save m_source::amps

Definition at line 45 of file m_source.F90.

4.6.2.5 real*8, save m_source::f0

Definition at line 45 of file m_source.F90.

4.6.2.6 real*8, save m_source::f1

Definition at line 45 of file m_source.F90.

4.6.2.7 real*8, save m_source::f2

Definition at line 45 of file m_source.F90.

4.6.2.8 `real*8, save m_source::h`

Definition at line 45 of file `m_source.F90`.

4.6.2.9 `real*8, save m_source::tdelay`

Definition at line 45 of file `m_source.F90`.

The documentation for this module was generated from the following file:

- [mod/m_source.F90](#)

Chapter 5

File Documentation

5.1 lib/bin/Gar6more2D.F90 File Reference

Functions/Subroutines

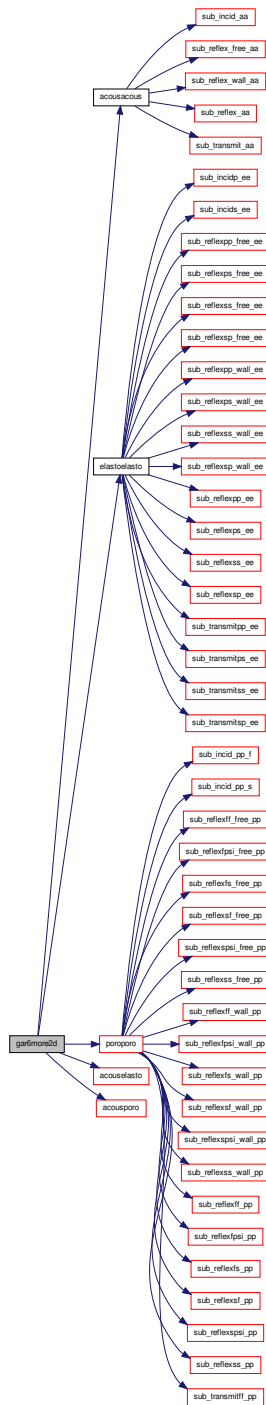
- program [gar6more2d](#)

5.1.1 Function/Subroutine Documentation

5.1.1.1 program `gar6more2d` ()

Definition at line 41 of file Gar6more2D.F90.

Here is the call graph for this function:



5.2 lib/libacousacous/acousacous.F90 File Reference

Functions/Subroutines

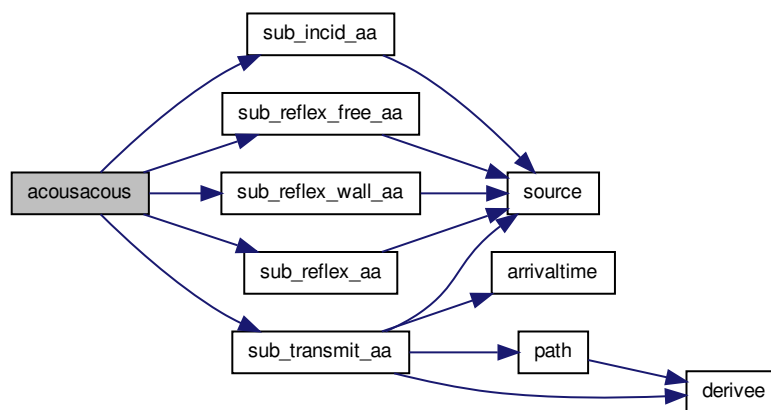
- subroutine [acousacous](#)

5.2.1 Function/Subroutine Documentation

5.2.1.1 subroutine acousacous ()

Definition at line 41 of file acousacous.F90.

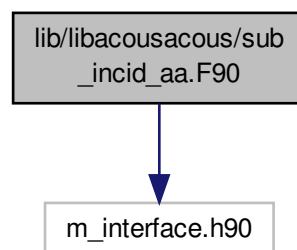
Here is the call graph for this function:



5.3 lib/libacousacous/sub_incid_aa.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_incid_aa.F90:



Functions/Subroutines

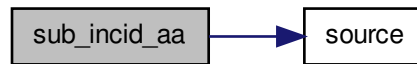
- subroutine [sub_incid_aa](#)

5.3.1 Function/Subroutine Documentation

5.3.1.1 subroutine sub_incid_aa ()

Definition at line 41 of file sub_incid_aa.F90.

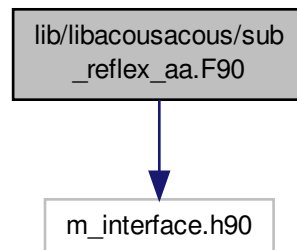
Here is the call graph for this function:



5.4 lib/libacousacous/sub_reflex_aa.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflex_aa.F90:



Functions/Subroutines

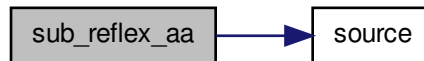
- subroutine [sub_reflex_aa](#)

5.4.1 Function/Subroutine Documentation

5.4.1.1 subroutine sub_reflex_aa ()

Definition at line 41 of file sub_reflex_aa.F90.

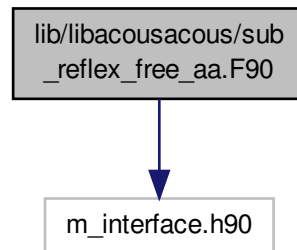
Here is the call graph for this function:



5.5 lib/libacousacous/sub_reflex_free_aa.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflex_free_aa.F90:



Functions/Subroutines

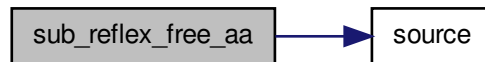
- subroutine [sub_reflex_free_aa](#)

5.5.1 Function/Subroutine Documentation

5.5.1.1 subroutine sub_reflex_free_aa ()

Definition at line 41 of file sub_reflex_free_aa.F90.

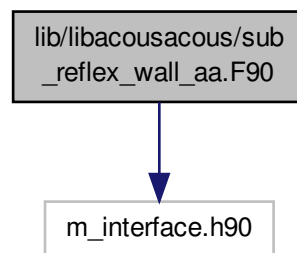
Here is the call graph for this function:



5.6 lib/libacousacous/sub_reflex_wall_aa.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflex_wall_aa.F90:



Functions/Subroutines

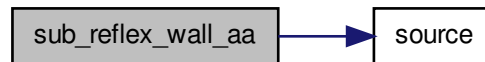
- subroutine [sub_reflex_wall_aa](#)

5.6.1 Function/Subroutine Documentation

5.6.1.1 subroutine sub_reflex_wall_aa ()

Definition at line 41 of file sub_reflex_wall_aa.F90.

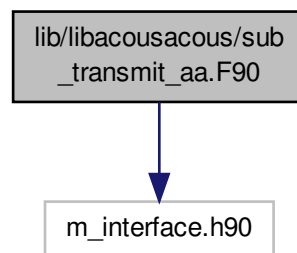
Here is the call graph for this function:



5.7 lib/libacousacous/sub_transmit_aa.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmit_aa.F90:



Functions/Subroutines

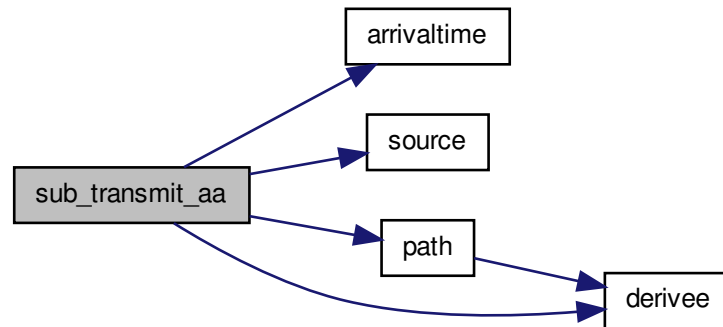
- subroutine [sub_transmit_aa](#)

5.7.1 Function/Subroutine Documentation

5.7.1.1 subroutine `sub_transmit_aa` ()

Definition at line 41 of file `sub_transmit_aa.F90`.

Here is the call graph for this function:



5.8 lib/libacouselasto/acouselasto.F90 File Reference

Functions/Subroutines

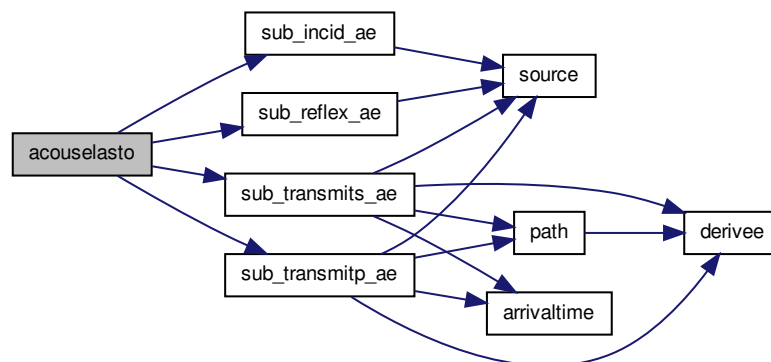
- subroutine [acouselasto](#)

5.8.1 Function/Subroutine Documentation

5.8.1.1 subroutine `acouselasto` ()

Definition at line 41 of file `acouselasto.F90`.

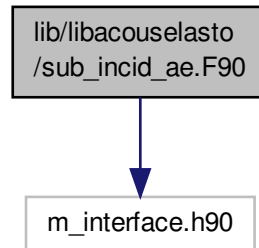
Here is the call graph for this function:



5.9 lib/libacouselasto/sub_incid_ae.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_incid_ae.F90:



Functions/Subroutines

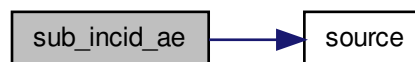
- subroutine [sub_incid_ae](#)

5.9.1 Function/Subroutine Documentation

5.9.1.1 subroutine sub_incid_ae ()

Definition at line 41 of file sub_incid_ae.F90.

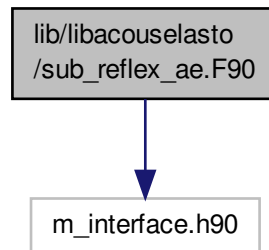
Here is the call graph for this function:



5.10 lib/libacouselasto/sub_reflex_ae.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflex_ae.F90:



Functions/Subroutines

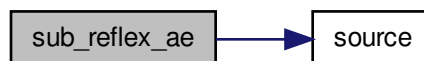
- subroutine [sub_reflex_ae](#)

5.10.1 Function/Subroutine Documentation

5.10.1.1 subroutine sub_reflex_ae ()

Definition at line 41 of file sub_reflex_ae.F90.

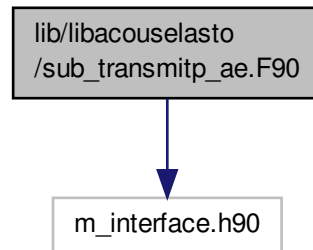
Here is the call graph for this function:



5.11 lib/libacouselasto/sub_transmitp_ae.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitp_ae.F90:



Functions/Subroutines

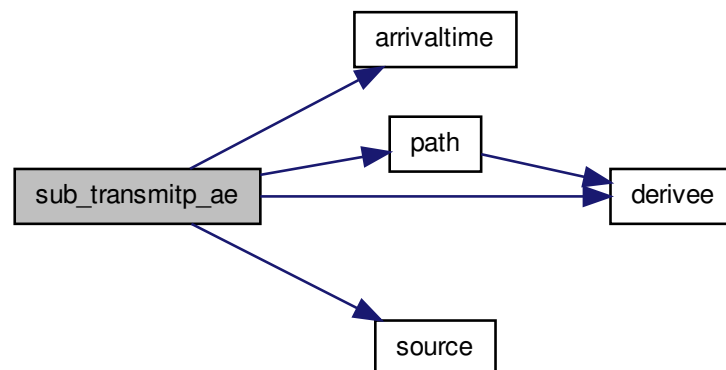
- subroutine [sub_transmitp_ae](#)

5.11.1 Function/Subroutine Documentation

5.11.1.1 subroutine sub_transmitp_ae ()

Definition at line 41 of file sub_transmitp_ae.F90.

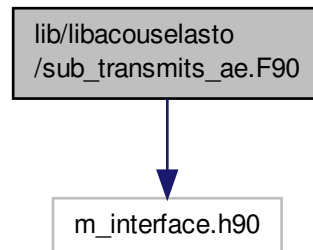
Here is the call graph for this function:



5.12 lib/libacouselasto/sub_transmits_ae.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmits_ae.F90:



Functions/Subroutines

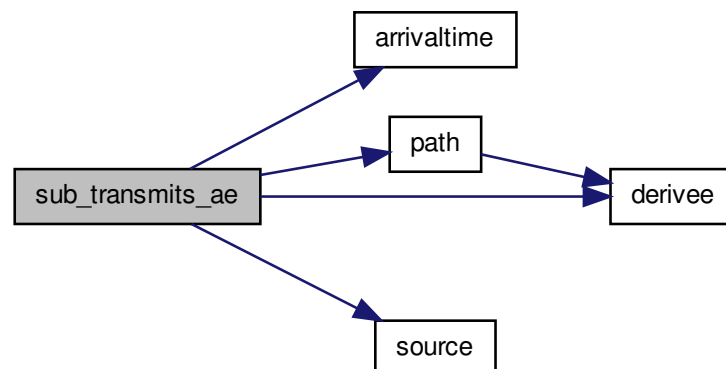
- subroutine [sub_transmits_ae](#)

5.12.1 Function/Subroutine Documentation

5.12.1.1 subroutine sub_transmits_ae ()

Definition at line 41 of file sub_transmits_ae.F90.

Here is the call graph for this function:



5.13 lib/libacousporo/acousporo.F90 File Reference

Functions/Subroutines

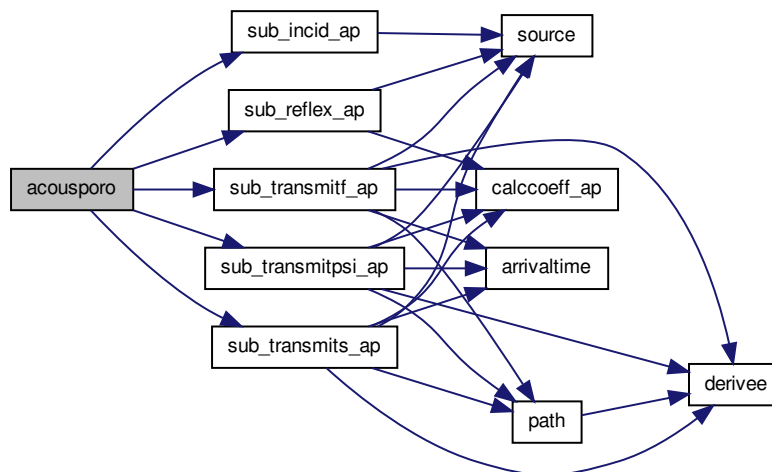
- subroutine [acousporo](#)

5.13.1 Function/Subroutine Documentation

5.13.1.1 subroutine [acousporo](#) ()

Definition at line 41 of file acousporo.F90.

Here is the call graph for this function:



5.14 lib/libacousporo/calccoeff_ap.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(4) [calccoeff_ap](#) (pp)

5.14.1 Function/Subroutine Documentation

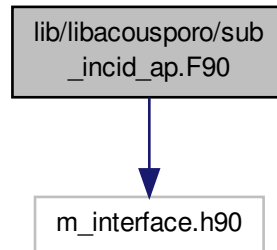
5.14.1.1 complex*16 function, dimension(4) [calccoeff_ap](#) (complex*16, intent(in) pp)

Definition at line 41 of file calccoeff_ap.F90.

5.15 lib/libacousporo/sub_incid_ap.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_incid_ap.F90:



Functions/Subroutines

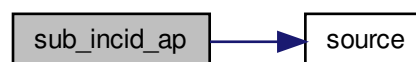
- subroutine [sub_incid_ap](#)

5.15.1 Function/Subroutine Documentation

5.15.1.1 subroutine sub_incid_ap ()

Definition at line 41 of file sub_incid_ap.F90.

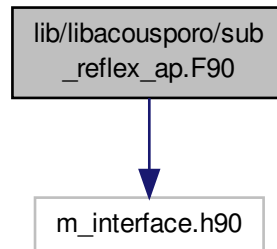
Here is the call graph for this function:



5.16 lib/libacousporo/sub_reflex_ap.F90 File Reference

```
#include "m_interface.h90"
```


Include dependency graph for sub_reflex_ap.F90:



Functions/Subroutines

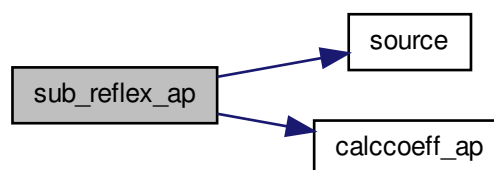
- subroutine [sub_reflex_ap](#)

5.16.1 Function/Subroutine Documentation

5.16.1.1 subroutine [sub_reflex_ap](#) ()

Definition at line 41 of file sub_reflex_ap.F90.

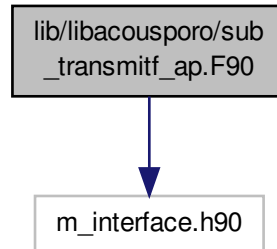
Here is the call graph for this function:



5.17 lib/libacousporo/sub_transmitf_ap.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitf_ap.F90:



Functions/Subroutines

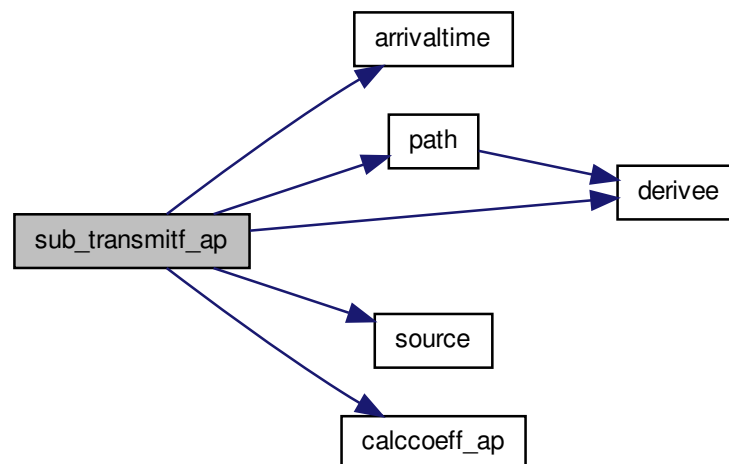
- subroutine [sub_transmitf_ap](#)

5.17.1 Function/Subroutine Documentation

5.17.1.1 subroutine sub_transmitf_ap ()

Definition at line 41 of file sub_transmitf_ap.F90.

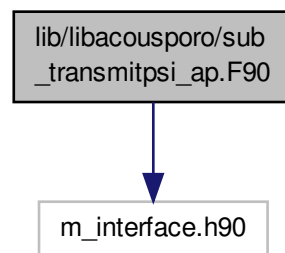
Here is the call graph for this function:



5.18 lib/libacouporo/sub_transmitpsi_ap.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitpsi_ap.F90:



Functions/Subroutines

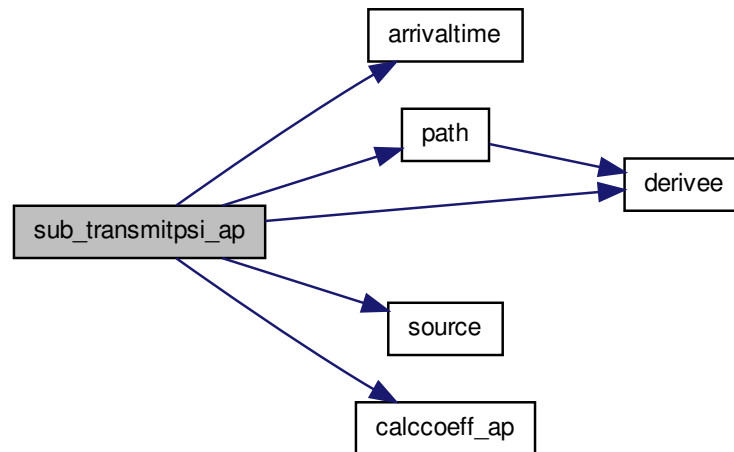
- subroutine [sub_transmitpsi_ap](#)

5.18.1 Function/Subroutine Documentation

5.18.1.1 subroutine `sub_transmitpsi_ap` ()

Definition at line 41 of file `sub_transmitpsi_ap.F90`.

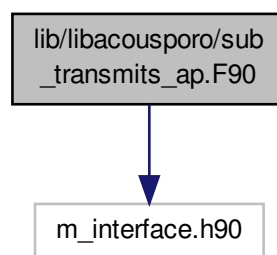
Here is the call graph for this function:



5.19 lib/libacousporo/sub_transmits_ap.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_transmits_ap.F90`:



Functions/Subroutines

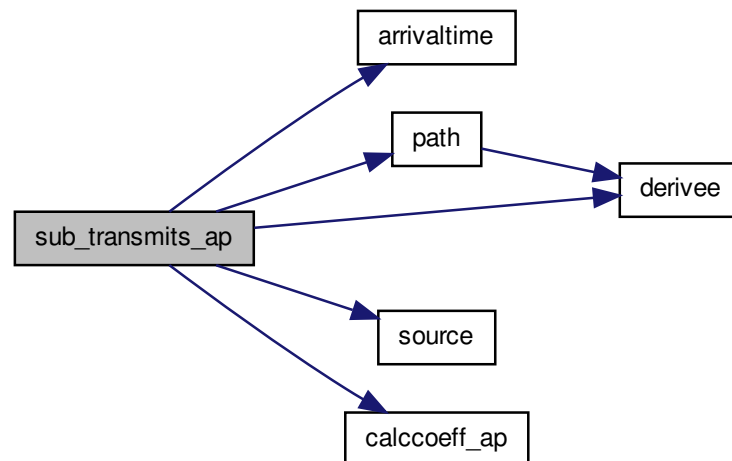
- subroutine [sub_transmits_ap](#)

5.19.1 Function/Subroutine Documentation

5.19.1.1 subroutine sub_transmits_ap ()

Definition at line 41 of file sub_transmits_ap.F90.

Here is the call graph for this function:



5.20 lib/libelastoelasto/calccoeffP_ee.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(4) [calccoeffp_ee](#) (pp)

5.20.1 Function/Subroutine Documentation

5.20.1.1 complex*16 function, dimension(4) calccoeffp_ee (complex*16, intent(in) pp)

Definition at line 41 of file calccoeffP_ee.F90.

5.21 lib/libelastoelasto/calccoeffS_ee.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(4) [calccoeffs_ee](#) (pp)

5.21.1 Function/Subroutine Documentation

5.21.1.1 `complex*16` function, dimension(4) `calccoefs_ee` (`complex*16`, intent(in) *pp*)

Definition at line 41 of file `calccoefs_ee.F90`.

5.22 `lib/libelastoelasto/elastoelasto.F90` File Reference

Functions/Subroutines

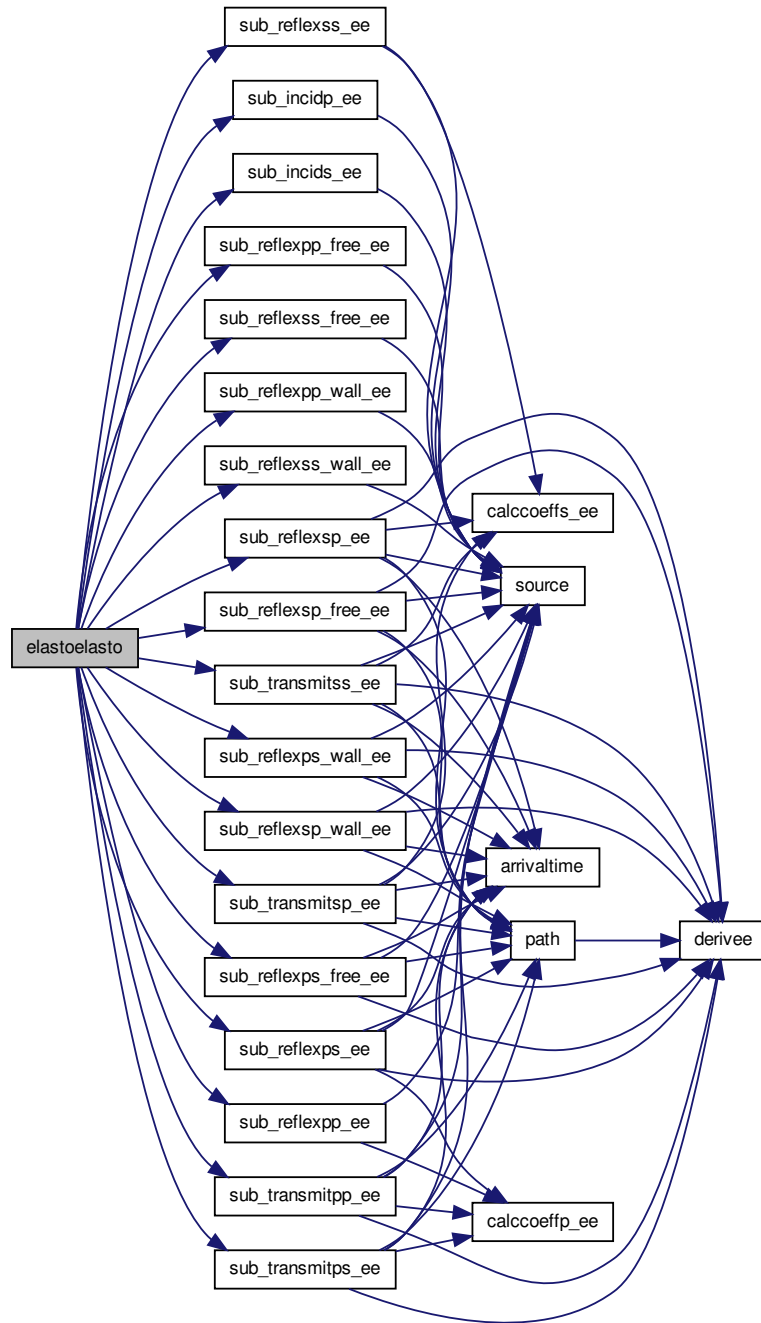
- subroutine [elastoelasto](#)

5.22.1 Function/Subroutine Documentation

5.22.1.1 subroutine `elastoelasto` ()

Definition at line 41 of file `elastoelasto.F90`.

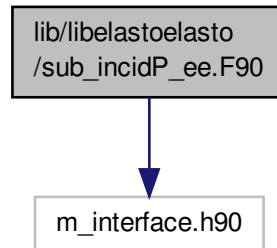
Here is the call graph for this function:



5.23 lib/libelastoelasto/sub_incidP_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_incidP_ee.F90:



Functions/Subroutines

- subroutine [sub_incidp_ee](#)

5.23.1 Function/Subroutine Documentation

5.23.1.1 subroutine sub_incidp_ee ()

Definition at line 41 of file sub_incidP_ee.F90.

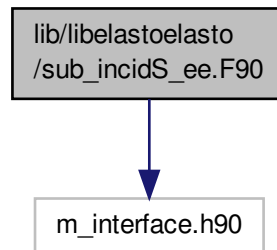
Here is the call graph for this function:



5.24 lib/libelastoelasto/sub_incidS_ee.F90 File Reference

```
#include "m_interface.h90"
```


Include dependency graph for sub_incidS_ee.F90:



Functions/Subroutines

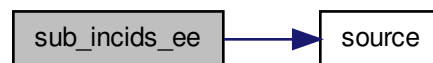
- subroutine [sub_incids_ee](#)

5.24.1 Function/Subroutine Documentation

5.24.1.1 subroutine sub_incids_ee ()

Definition at line 41 of file sub_incidS_ee.F90.

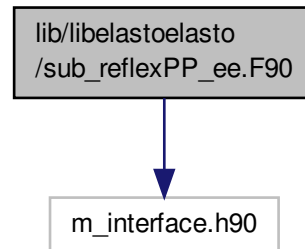
Here is the call graph for this function:



5.25 lib/libelastoelasto/sub_reflexPP_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexPP_ee.F90:



Functions/Subroutines

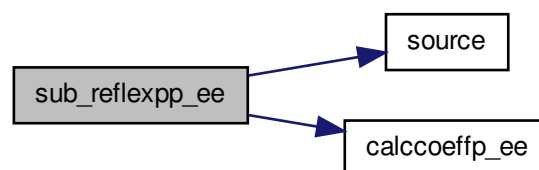
- subroutine [sub_reflexpp_ee](#)

5.25.1 Function/Subroutine Documentation

5.25.1.1 subroutine [sub_reflexpp_ee](#) ()

Definition at line 41 of file sub_reflexPP_ee.F90.

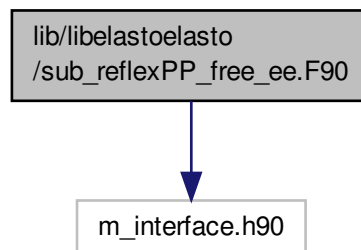
Here is the call graph for this function:



5.26 lib/libelastoelasto/sub_reflexPP_free_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexPP_free_ee.F90:



Functions/Subroutines

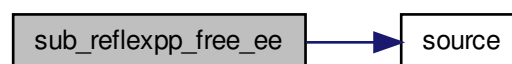
- subroutine [sub_reflexpp_free_ee](#)

5.26.1 Function/Subroutine Documentation

5.26.1.1 subroutine sub_reflexpp_free_ee ()

Definition at line 41 of file sub_reflexPP_free_ee.F90.

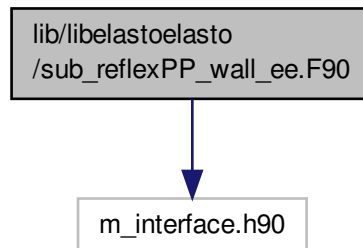
Here is the call graph for this function:



5.27 lib/libelastoelasto/sub_reflexPP_wall_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexPP_wall_ee.F90:



Functions/Subroutines

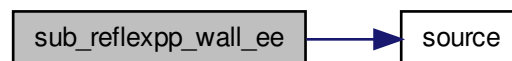
- subroutine [sub_reflexpp_wall_ee](#)

5.27.1 Function/Subroutine Documentation

5.27.1.1 subroutine sub_reflexpp_wall_ee ()

Definition at line 41 of file sub_reflexPP_wall_ee.F90.

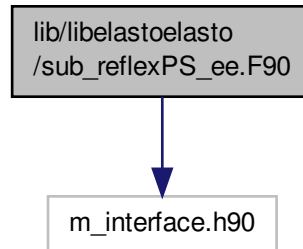
Here is the call graph for this function:



5.28 lib/libelastoelasto/sub_reflexPS_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexPS_ee.F90:



Functions/Subroutines

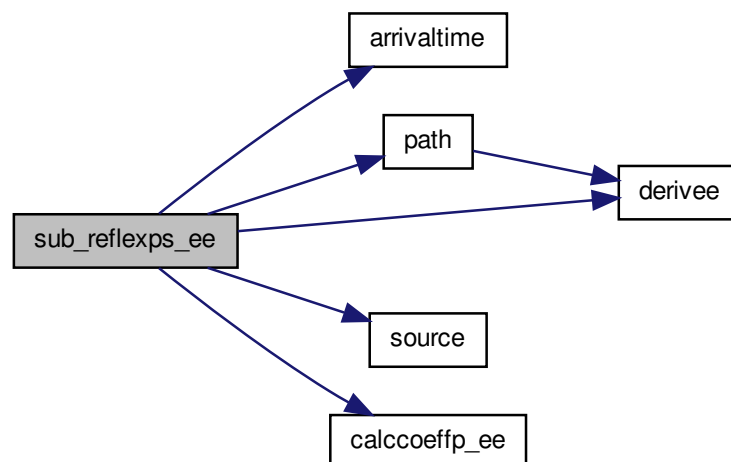
- subroutine [sub_reflexps_ee](#)

5.28.1 Function/Subroutine Documentation

5.28.1.1 subroutine sub_reflexps_ee ()

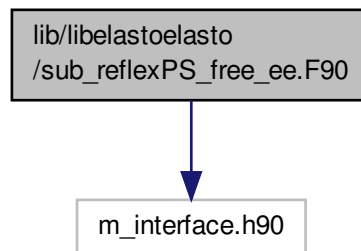
Definition at line 41 of file sub_reflexPS_ee.F90.

Here is the call graph for this function:



5.29 lib/libelastoelasto/sub_reflexPS_free_ee.F90 File Reference

```
#include "m_interface.h90"  
Include dependency graph for sub_reflexPS_free_ee.F90:
```



Functions/Subroutines

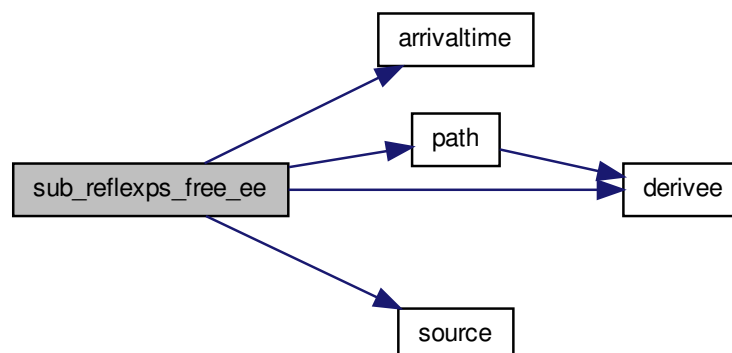
- subroutine [sub_reflexps_free_ee](#)

5.29.1 Function/Subroutine Documentation

5.29.1.1 subroutine `sub_reflexps_free_ee` ()

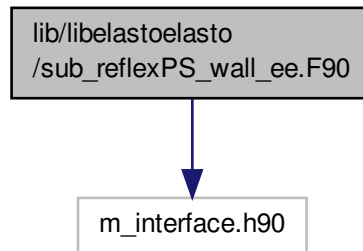
Definition at line 41 of file `sub_reflexPS_free_ee.F90`.

Here is the call graph for this function:



5.30 lib/libelastoelasto/sub_reflexPS_wall_ee.F90 File Reference

```
#include "m_interface.h90"  
Include dependency graph for sub_reflexPS_wall_ee.F90:
```



Functions/Subroutines

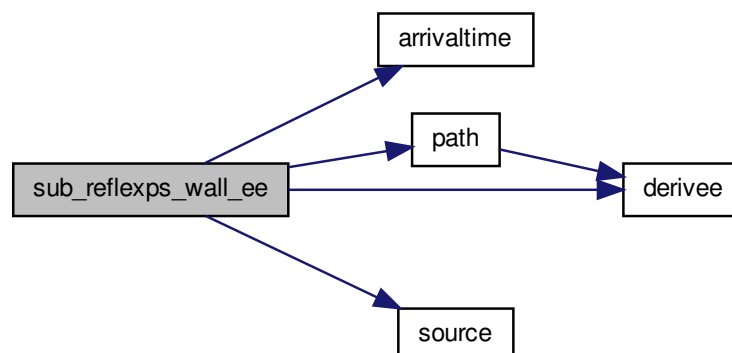
- subroutine [sub_reflexps_wall_ee](#)

5.30.1 Function/Subroutine Documentation

5.30.1.1 subroutine `sub_reflexps_wall_ee` ()

Definition at line 41 of file `sub_reflexPS_wall_ee.F90`.

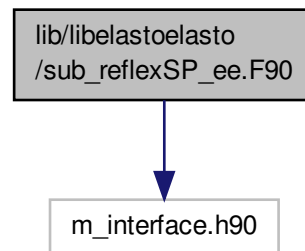
Here is the call graph for this function:



5.31 lib/libelastoelasto/sub_reflexSP_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexSP_ee.F90:



Functions/Subroutines

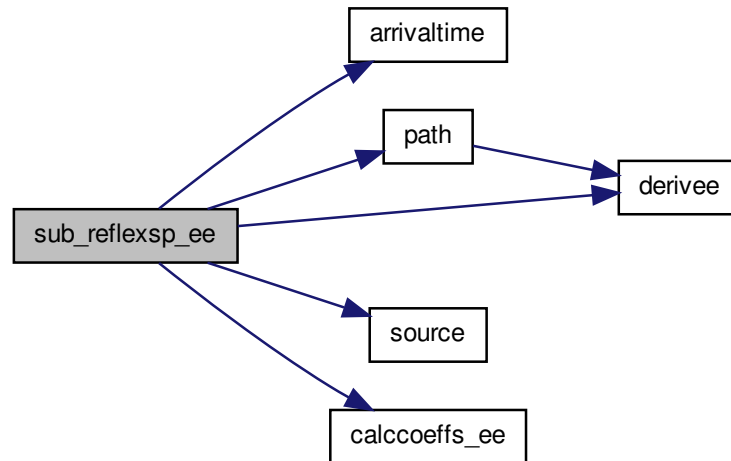
- subroutine [sub_reflexsp_ee](#)

5.31.1 Function/Subroutine Documentation

5.31.1.1 subroutine `sub_reflexsp_ee` ()

Definition at line 41 of file `sub_reflexSP_ee.F90`.

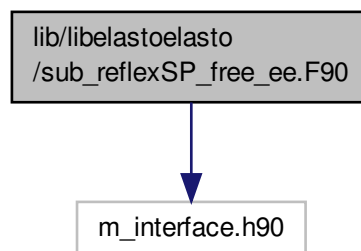
Here is the call graph for this function:



5.32 lib/libelastoelasto/sub_reflexSP_free_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexSP_free_ee.F90`:



Functions/Subroutines

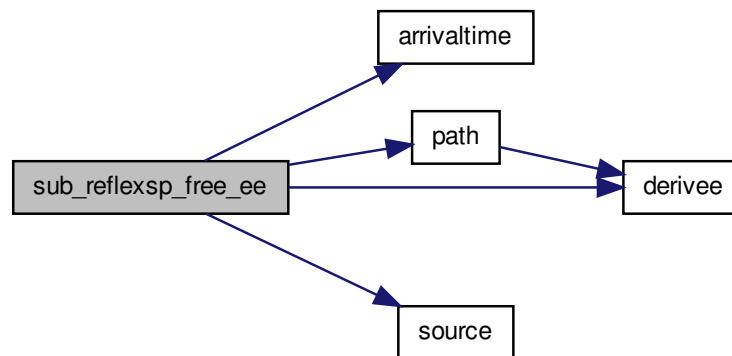
- subroutine [sub_reflexsp_free_ee](#)

5.32.1 Function/Subroutine Documentation

5.32.1.1 subroutine `sub_reflexsp_free_ee` ()

Definition at line 41 of file `sub_reflexSP_free_ee.F90`.

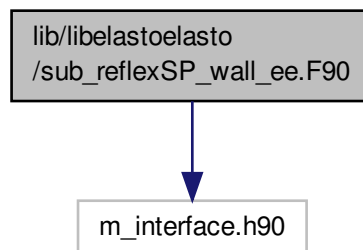
Here is the call graph for this function:



5.33 lib/libelastoelasto/sub_reflexSP_wall_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexSP_wall_ee.F90`:



Functions/Subroutines

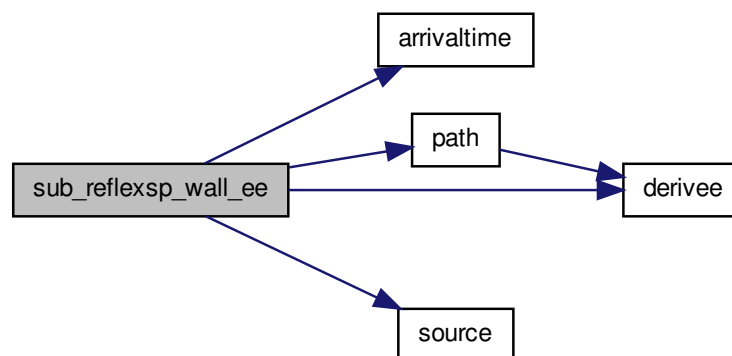
- subroutine [sub_reflexsp_wall_ee](#)

5.33.1 Function/Subroutine Documentation

5.33.1.1 subroutine sub_reflexsp_wall_ee ()

Definition at line 41 of file sub_reflexSP_wall_ee.F90.

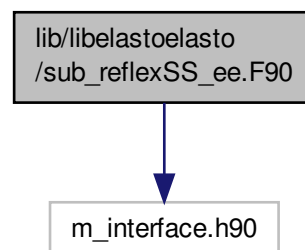
Here is the call graph for this function:



5.34 lib/libelastoelasto/sub_reflexSS_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexSS_ee.F90:



Functions/Subroutines

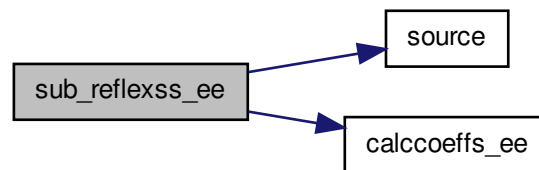
- subroutine [sub_reflexss_ee](#)

5.34.1 Function/Subroutine Documentation

5.34.1.1 subroutine `sub_reflexss_ee` ()

Definition at line 41 of file `sub_reflexSS_ee.F90`.

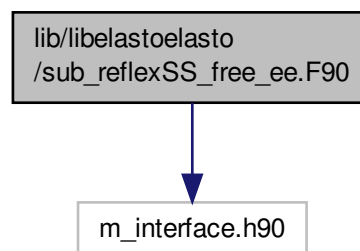
Here is the call graph for this function:



5.35 lib/libelastoelasto/sub_reflexSS_free_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexSS_free_ee.F90`:



Functions/Subroutines

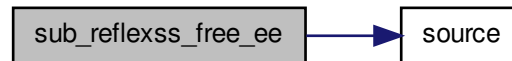
- subroutine [sub_reflexss_free_ee](#)

5.35.1 Function/Subroutine Documentation

5.35.1.1 subroutine `sub_reflexss_free_ee` ()

Definition at line 41 of file `sub_reflexSS_free_ee.F90`.

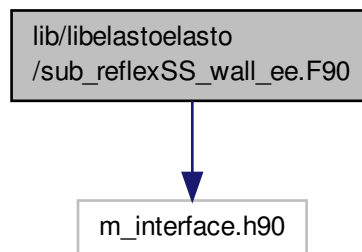
Here is the call graph for this function:



5.36 lib/libelastoelasto/sub_reflexSS_wall_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexSS_wall_ee.F90`:



Functions/Subroutines

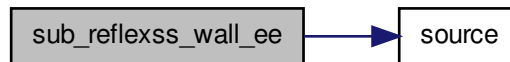
- subroutine [sub_reflexss_wall_ee](#)

5.36.1 Function/Subroutine Documentation

5.36.1.1 subroutine `sub_reflexss_wall_ee` ()

Definition at line 41 of file `sub_reflexSS_wall_ee.F90`.

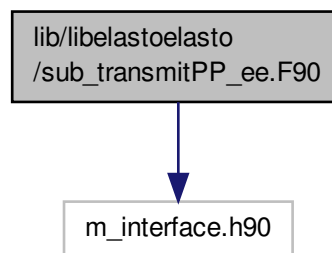
Here is the call graph for this function:



5.37 lib/libelastoelasto/sub_transmitPP_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitPP_ee.F90:



Functions/Subroutines

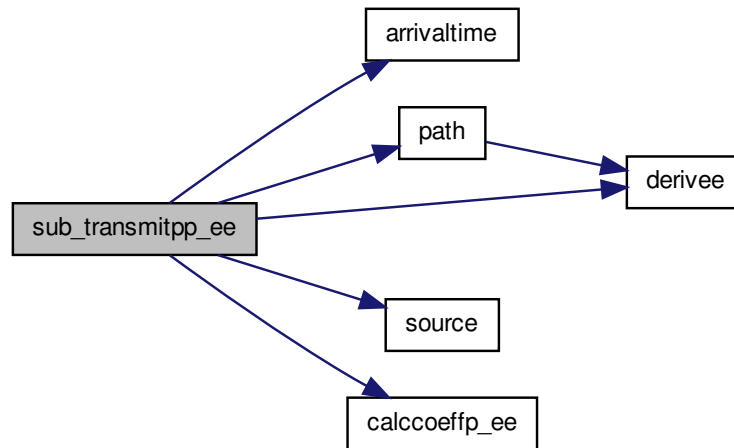
- subroutine [sub_transmitpp_ee](#)

5.37.1 Function/Subroutine Documentation

5.37.1.1 subroutine sub_transmitpp_ee ()

Definition at line 41 of file sub_transmitPP_ee.F90.

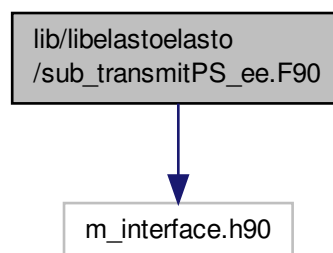
Here is the call graph for this function:



5.38 lib/libelastoelasto/sub_transmitPS_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_transmitPS_ee.F90`:



Functions/Subroutines

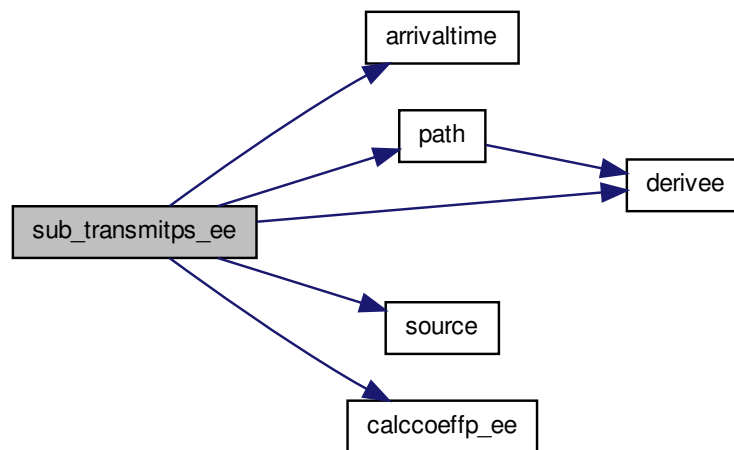
- subroutine [sub_transmitps_ee](#)

5.38.1 Function/Subroutine Documentation

5.38.1.1 subroutine sub_transmitps_ee ()

Definition at line 41 of file sub_transmitPS_ee.F90.

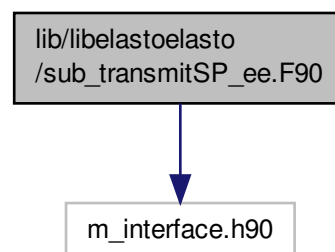
Here is the call graph for this function:



5.39 lib/libelastoelasto/sub_transmitSP_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitSP_ee.F90:



Functions/Subroutines

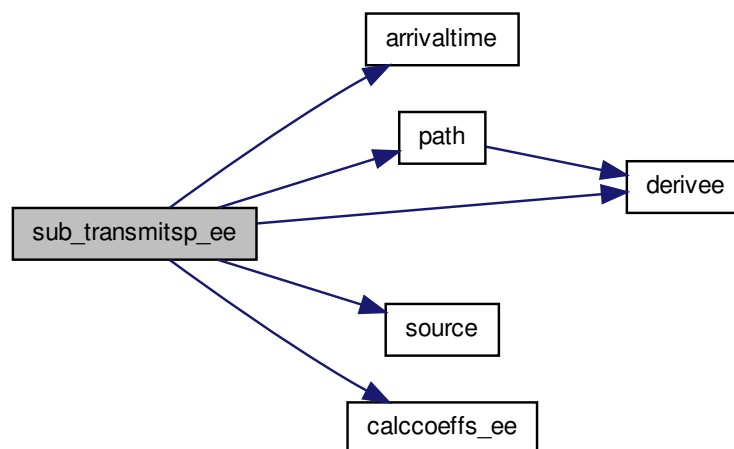
- subroutine [sub_transmitsp_ee](#)

5.39.1 Function/Subroutine Documentation

5.39.1.1 subroutine `sub_transmitsp_ee` ()

Definition at line 41 of file `sub_transmitSP_ee.F90`.

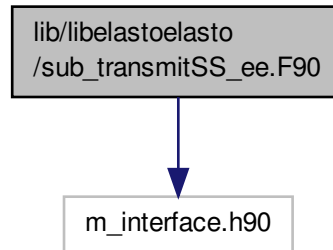
Here is the call graph for this function:



5.40 lib/libelastoelasto/sub_transmitSS_ee.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitSS_ee.F90:



Functions/Subroutines

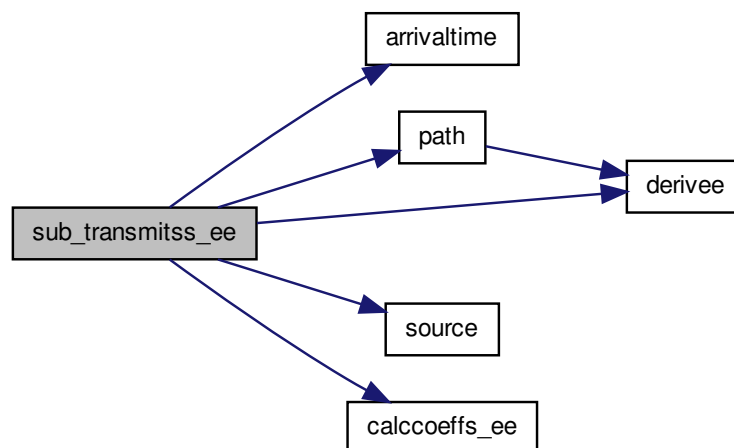
- subroutine [sub_transmitss_ee](#)

5.40.1 Function/Subroutine Documentation

5.40.1.1 subroutine sub_transmitss_ee ()

Definition at line 41 of file sub_transmitSS_ee.F90.

Here is the call graph for this function:



5.41 lib/libgeneral/arrivaltime.F90 File Reference

Functions/Subroutines

- real *8 function [arrivaltime](#) (h, x, y, V1, V2)

5.41.1 Function/Subroutine Documentation

5.41.1.1 real*8 function [arrivaltime](#) (real*8, intent(in) h, real*8, intent(in) x, real*8, intent(in) y, real*8, intent(in) V1, real*8, intent(in) V2)

Definition at line 41 of file arrivaltime.F90.

5.42 lib/libgeneral/derivee.F90 File Reference

Functions/Subroutines

- complex *16 function [derivee](#) (x, y, h, V1, V2, pp)

5.42.1 Function/Subroutine Documentation

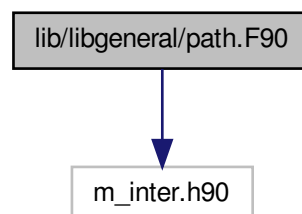
5.42.1.1 complex*16 function [derivee](#) (real*8, intent(in) x, real*8, intent(in) y, real*8, intent(in) h, real*8, intent(in) V1, real*8, intent(in) V2, complex*16, intent(in) pp)

Definition at line 41 of file derivee.F90.

5.43 lib/libgeneral/path.F90 File Reference

```
#include "m_inter.h90"
```

Include dependency graph for path.F90:



Functions/Subroutines

- complex *16 function [path](#) (x, y, h, V1, V2, t)

5.43.1 Function/Subroutine Documentation

5.43.1.1 complex*16 function [path](#) (real*8, intent(in) x, real*8, intent(in) y, real*8, intent(in) h, real*8, intent(in) V1, real*8, intent(in) V2, real*8, intent(in) t)

Definition at line 41 of file path.F90.

Here is the call graph for this function:



5.44 lib/libgeneral/source.F90 File Reference

Functions/Subroutines

- real *8 function [source](#) (t)

5.44.1 Function/Subroutine Documentation

5.44.1.1 real*8 function [source](#) (real*8, intent(in) t)

Definition at line 41 of file source.F90.

5.45 lib/libporoporo/calccoeff_free_pp.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(3) [calccoeff_free_pp](#) (pp)

5.45.1 Function/Subroutine Documentation

5.45.1.1 complex*16 function, dimension(3) [calccoeff_free_pp](#) (complex*16, intent(in) pp)

Definition at line 41 of file calccoeff_free_pp.F90.

5.46 lib/libporoporo/calccoeff_pp.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(6) [calccoeff_pp](#) (pp)

5.46.1 Function/Subroutine Documentation

5.46.1.1 complex*16 function, dimension(6) [calccoeff_pp](#) (complex*16, intent(in) pp)

Definition at line 41 of file calccoeff_pp.F90.

5.47 lib/libporoporo/calccoeff_wall_pp.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(3) [calccoeff_wall_pp](#) (pp)

5.47.1 Function/Subroutine Documentation

5.47.1.1 complex*16 function, dimension(3) [calccoeff_wall_pp](#) (complex*16, intent(in) pp)

Definition at line 41 of file calccoeff_wall_pp.F90.

5.48 lib/libporoporo/calccoefs_free_pp.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(3) [calccoefs_free_pp](#) (pp)

5.48.1 Function/Subroutine Documentation

5.48.1.1 complex*16 function, dimension(3) [calccoefs_free_pp](#) (complex*16, intent(in) pp)

Definition at line 41 of file calccoefs_free_pp.F90.

5.49 lib/libporoporo/calccoefs_pp.F90 File Reference

Functions/Subroutines

- complex *16 function, dimension(6) [calccoefs_pp](#) (pp)

5.49.1 Function/Subroutine Documentation

5.49.1.1 `complex*16` function, `dimension(6)` `calccoeffs_pp` (`complex*16`, `intent(in) pp`)

Definition at line 41 of file `calccoeffs_pp.F90`.

5.50 lib/libporoporo/calccoeffs_wall_pp.F90 File Reference

Functions/Subroutines

- `complex *16` function, `dimension(3)` `calccoeffs_wall_pp` (`pp`)

5.50.1 Function/Subroutine Documentation

5.50.1.1 `complex*16` function, `dimension(3)` `calccoeffs_wall_pp` (`complex*16`, `intent(in) pp`)

Definition at line 41 of file `calccoeffs_wall_pp.F90`.

5.51 lib/libporoporo/poroporo.F90 File Reference

Functions/Subroutines

- subroutine `poroporo`

5.51.1 Function/Subroutine Documentation

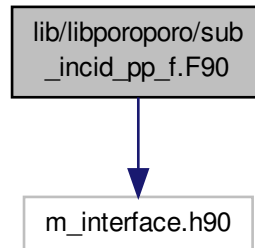
5.51.1.1 subroutine `poroporo` ()

Definition at line 41 of file `poroporo.F90`.

5.52 lib/libporoporo/sub_incid_pp_f.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_incid_pp_f.F90:



Functions/Subroutines

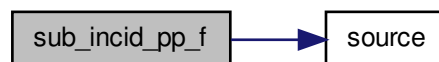
- subroutine [sub_incid_pp_f](#)

5.52.1 Function/Subroutine Documentation

5.52.1.1 subroutine sub_incid_pp_f()

Definition at line 41 of file sub_incid_pp_f.F90.

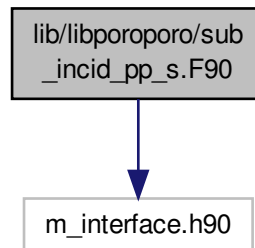
Here is the call graph for this function:



5.53 lib/libporoporo/sub_incid_pp_s.F90 File Reference

```
#include "m_interface.h90"
```


Include dependency graph for sub_incid_pp_s.F90:



Functions/Subroutines

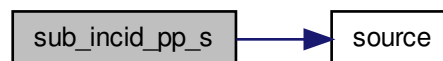
- subroutine [sub_incid_pp_s](#)

5.53.1 Function/Subroutine Documentation

5.53.1.1 subroutine sub_incid_pp_s ()

Definition at line 41 of file sub_incid_pp_s.F90.

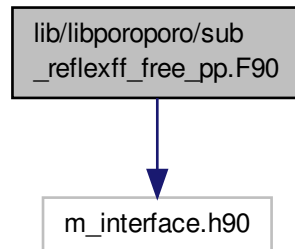
Here is the call graph for this function:



5.54 lib/libporoporo/sub_reflexff_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexff_free_pp.F90:



Functions/Subroutines

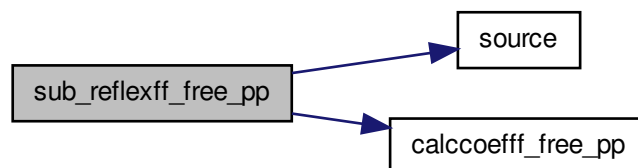
- subroutine [sub_reflexff_free_pp](#)

5.54.1 Function/Subroutine Documentation

5.54.1.1 subroutine [sub_reflexff_free_pp](#) ()

Definition at line 41 of file sub_reflexff_free_pp.F90.

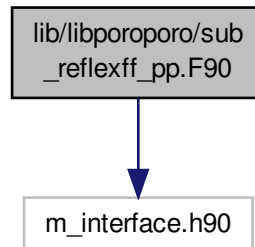
Here is the call graph for this function:



5.55 lib/libporoporo/sub_reflexff_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexff_pp.F90:



Functions/Subroutines

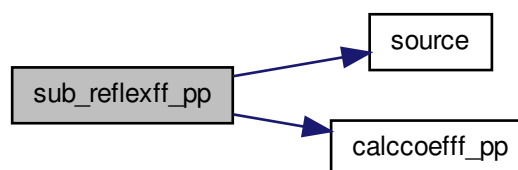
- subroutine [sub_reflexff_pp](#)

5.55.1 Function/Subroutine Documentation

5.55.1.1 subroutine [sub_reflexff_pp](#) ()

Definition at line 41 of file sub_reflexff_pp.F90.

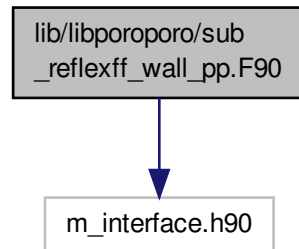
Here is the call graph for this function:



5.56 lib/libporoporo/sub_reflexff_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexff_wall_pp.F90:



Functions/Subroutines

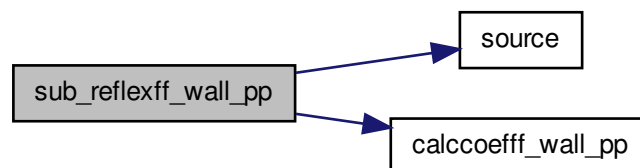
- subroutine [sub_reflexff_wall_pp](#)

5.56.1 Function/Subroutine Documentation

5.56.1.1 subroutine [sub_reflexff_wall_pp](#) ()

Definition at line 41 of file sub_reflexff_wall_pp.F90.

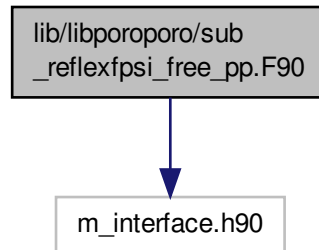
Here is the call graph for this function:



5.57 lib/libporoporo/sub_reflexffpsi_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexpsi_free_pp.F90:



Functions/Subroutines

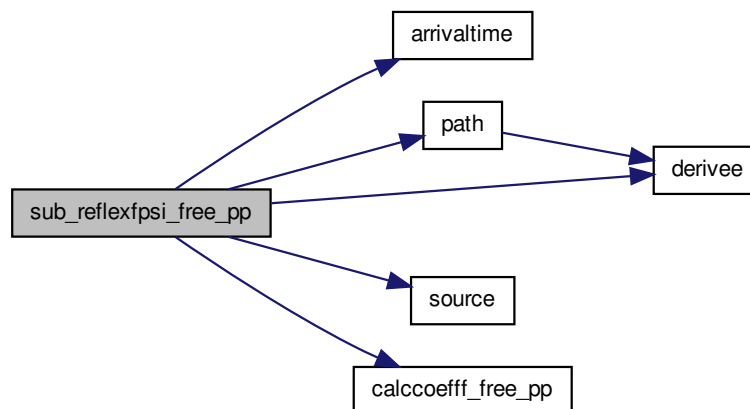
- subroutine [sub_reflexpsi_free_pp](#)

5.57.1 Function/Subroutine Documentation

5.57.1.1 subroutine sub_reflexpsi_free_pp ()

Definition at line 41 of file sub_reflexpsi_free_pp.F90.

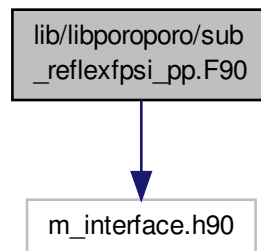
Here is the call graph for this function:



5.58 lib/libporoporo/sub_reflexpsi_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexpsi_pp.F90:



Functions/Subroutines

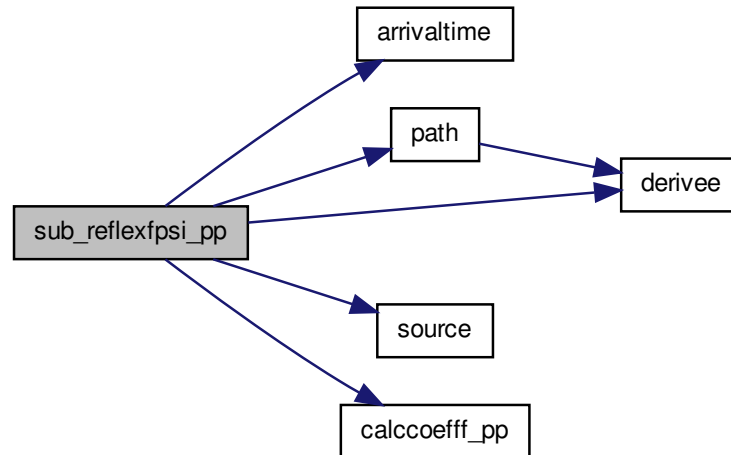
- subroutine [sub_reflexpsi_pp](#)

5.58.1 Function/Subroutine Documentation

5.58.1.1 subroutine `sub_reflexpsi_pp` ()

Definition at line 41 of file `sub_reflexpsi_pp.F90`.

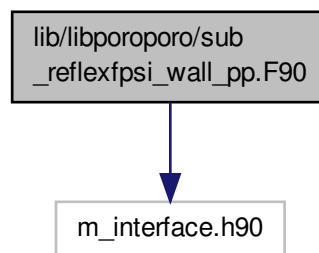
Here is the call graph for this function:



5.59 lib/libporoporo/sub_reflexpsi_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexpsi_wall_pp.F90`:



Functions/Subroutines

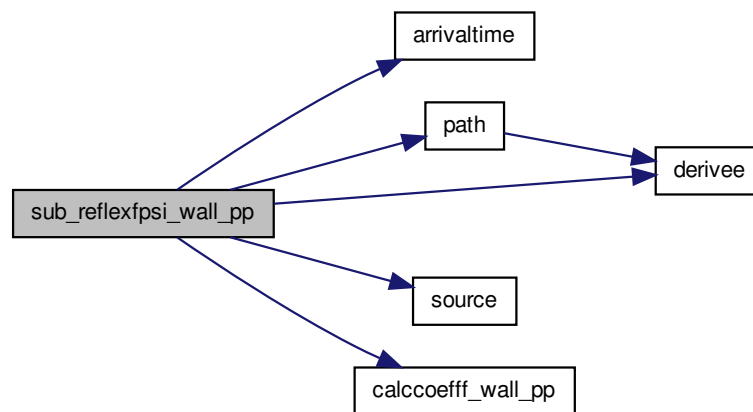
- subroutine [sub_reflexpsi_wall_pp](#)

5.59.1 Function/Subroutine Documentation

5.59.1.1 subroutine sub_reflexpsi_wall_pp ()

Definition at line 41 of file sub_reflexpsi_wall_pp.F90.

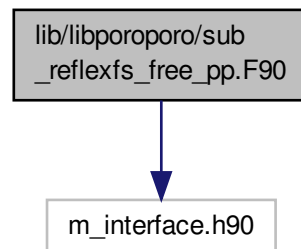
Here is the call graph for this function:



5.60 lib/libporoporo/sub_reflexfs_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexfs_free_pp.F90:



Functions/Subroutines

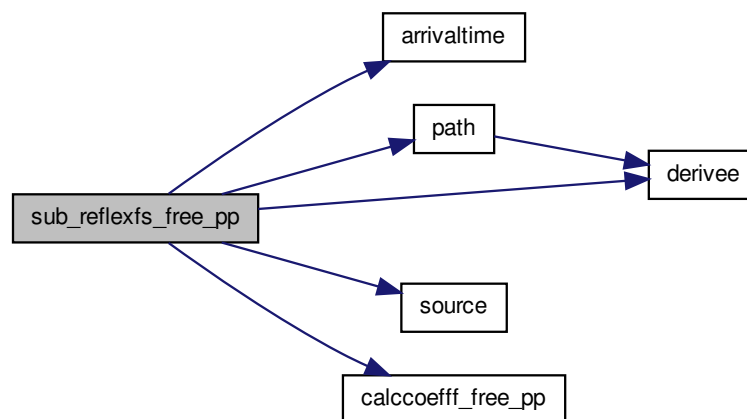
- subroutine [sub_reflexfs_free_pp](#)

5.60.1 Function/Subroutine Documentation

5.60.1.1 subroutine `sub_reflexfs_free_pp` ()

Definition at line 41 of file `sub_reflexfs_free_pp.F90`.

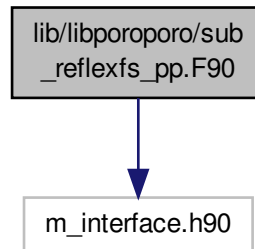
Here is the call graph for this function:



5.61 lib/libporoporo/sub_reflexfs_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexfs_pp.F90:



Functions/Subroutines

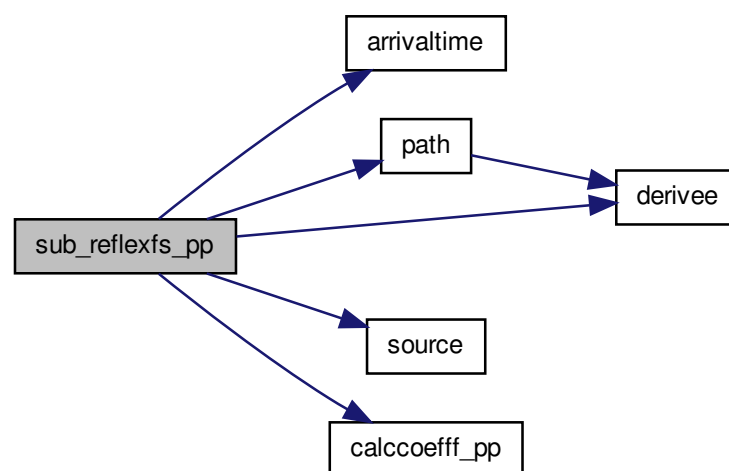
- subroutine [sub_reflexfs_pp](#)

5.61.1 Function/Subroutine Documentation

5.61.1.1 subroutine sub_reflexfs_pp ()

Definition at line 41 of file sub_reflexfs_pp.F90.

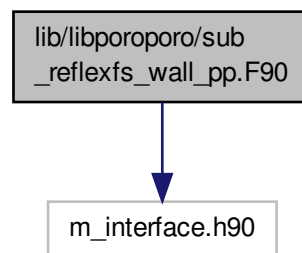
Here is the call graph for this function:



5.62 lib/libporoporo/sub_reflexfs_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexfs_wall_pp.F90:



Functions/Subroutines

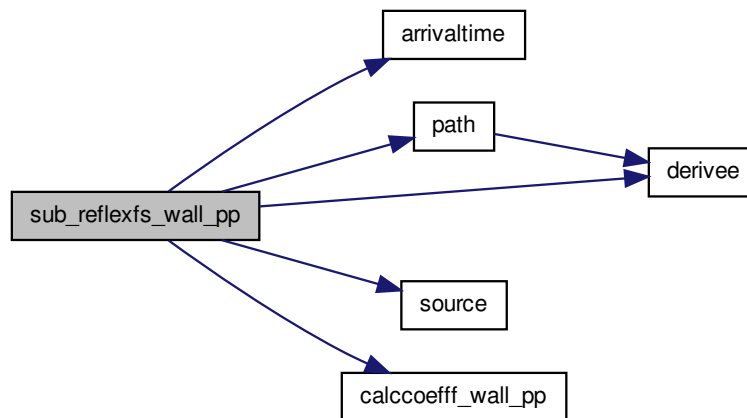
- subroutine [sub_reflexfs_wall_pp](#)

5.62.1 Function/Subroutine Documentation

5.62.1.1 subroutine [sub_reflexfs_wall_pp](#) ()

Definition at line 41 of file sub_reflexfs_wall_pp.F90.

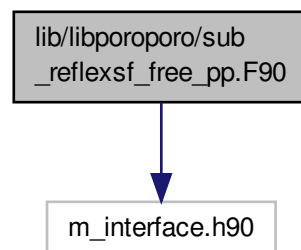
Here is the call graph for this function:



5.63 lib/libporoporo/sub_reflexsf_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexsf_free_pp.F90:



Functions/Subroutines

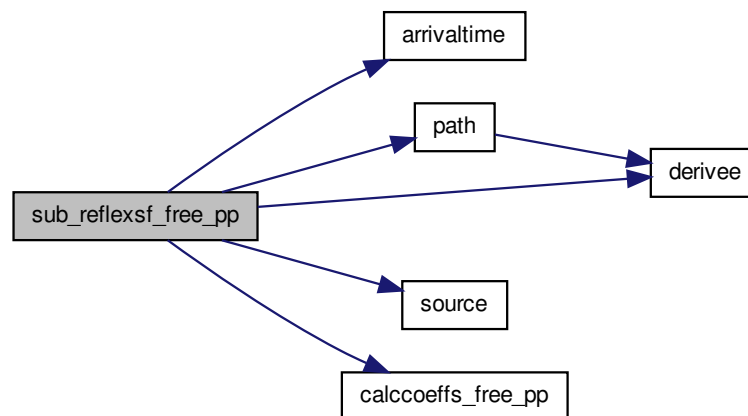
- subroutine [sub_reflexsf_free_pp](#)

5.63.1 Function/Subroutine Documentation

5.63.1.1 subroutine `sub_reflexsf_free_pp` ()

Definition at line 41 of file `sub_reflexsf_free_pp.F90`.

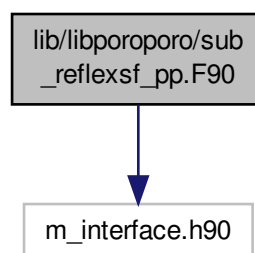
Here is the call graph for this function:



5.64 lib/libporoporo/sub_reflexsf_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexsf_pp.F90`:



Functions/Subroutines

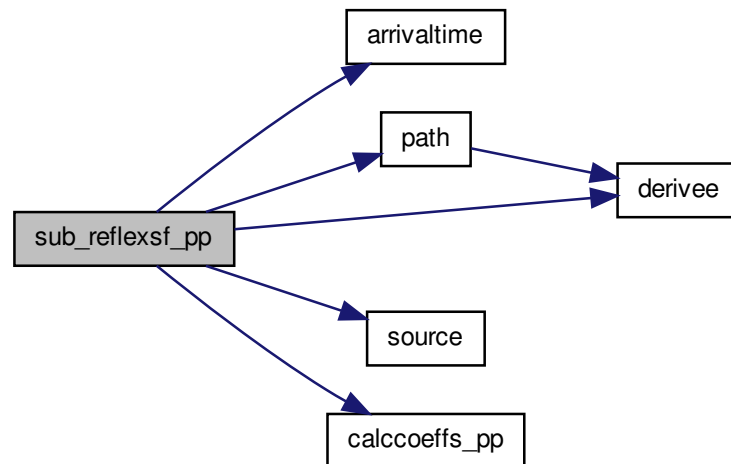
- subroutine [sub_reflexsf_pp](#)

5.64.1 Function/Subroutine Documentation

5.64.1.1 subroutine sub_reflexsf_pp ()

Definition at line 41 of file sub_reflexsf_pp.F90.

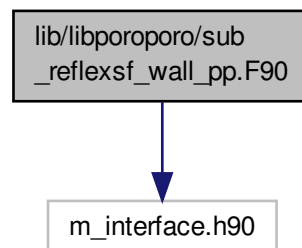
Here is the call graph for this function:



5.65 lib/libporoporo/sub_reflexsf_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexsf_wall_pp.F90:



Functions/Subroutines

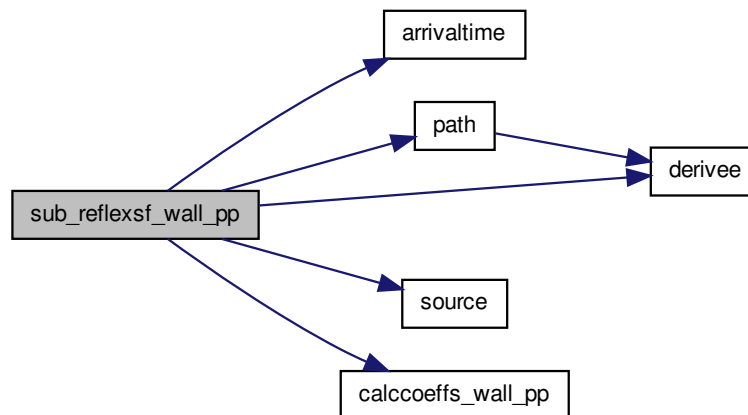
- subroutine [sub_reflexsf_wall_pp](#)

5.65.1 Function/Subroutine Documentation

5.65.1.1 subroutine `sub_reflexsf_wall_pp` ()

Definition at line 41 of file `sub_reflexsf_wall_pp.F90`.

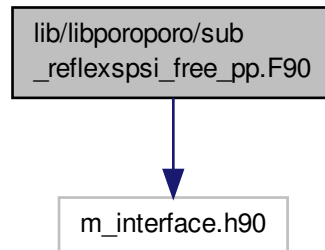
Here is the call graph for this function:



5.66 lib/libporoporo/sub_reflexpsi_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexspsi_free_pp.F90:



Functions/Subroutines

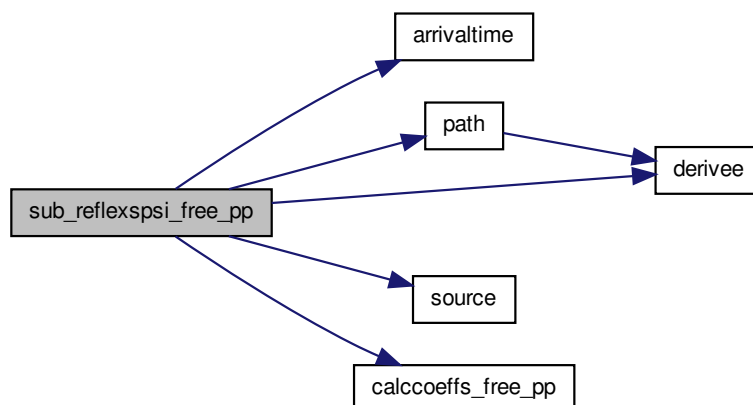
- subroutine [sub_reflexspsi_free_pp](#)

5.66.1 Function/Subroutine Documentation

5.66.1.1 subroutine sub_reflexspsi_free_pp ()

Definition at line 41 of file sub_reflexspsi_free_pp.F90.

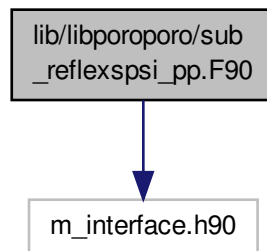
Here is the call graph for this function:



5.67 lib/libporoporo/sub_reflexpsi_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexpsi_pp.F90:



Functions/Subroutines

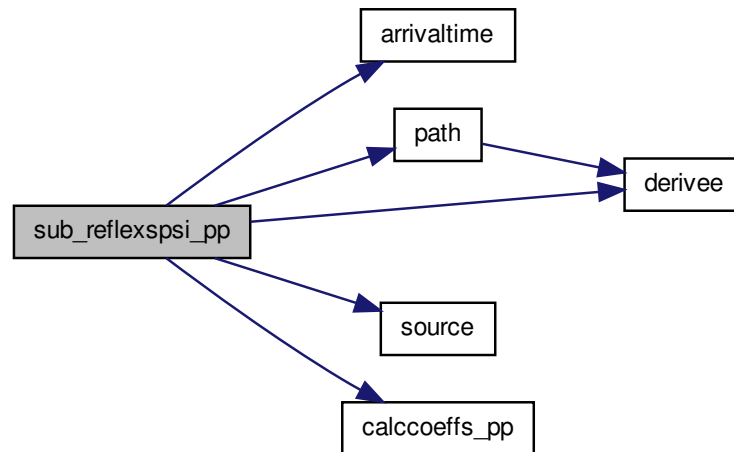
- subroutine [sub_reflexpsi_pp](#)

5.67.1 Function/Subroutine Documentation

5.67.1.1 subroutine `sub_reflexpsi_pp` ()

Definition at line 41 of file `sub_reflexpsi_pp.F90`.

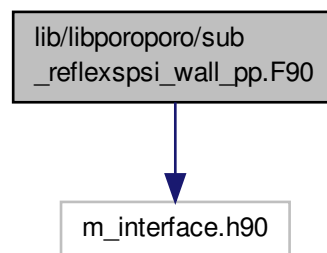
Here is the call graph for this function:



5.68 lib/libporoporo/sub_reflexpsi_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexpsi_wall_pp.F90`:



Functions/Subroutines

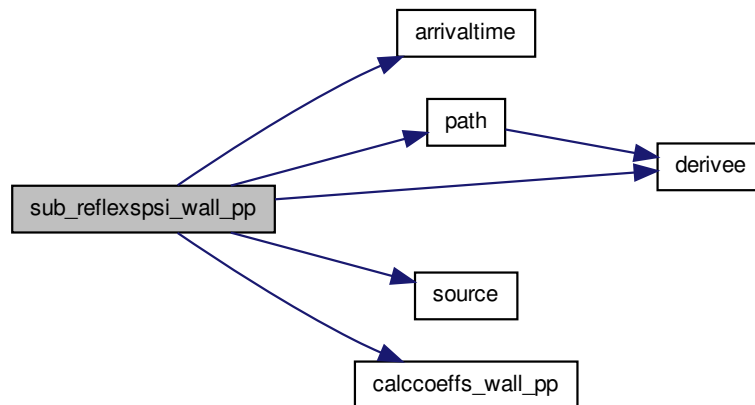
- subroutine [sub_reflexpsi_wall_pp](#)

5.68.1 Function/Subroutine Documentation

5.68.1.1 subroutine sub_reflexpsi_wall_pp ()

Definition at line 41 of file sub_reflexpsi_wall_pp.F90.

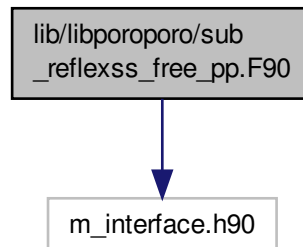
Here is the call graph for this function:



5.69 lib/libporoporo/sub_reflexss_free_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_reflexss_free_pp.F90:



Functions/Subroutines

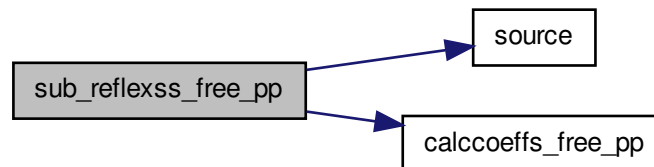
- subroutine [sub_reflexss_free_pp](#)

5.69.1 Function/Subroutine Documentation

5.69.1.1 subroutine `sub_reflexss_free_pp` ()

Definition at line 41 of file `sub_reflexss_free_pp.F90`.

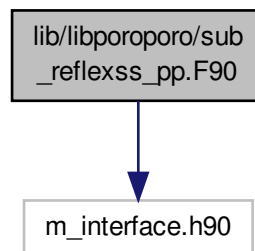
Here is the call graph for this function:



5.70 lib/libporoporo/sub_reflexss_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexss_pp.F90`:



Functions/Subroutines

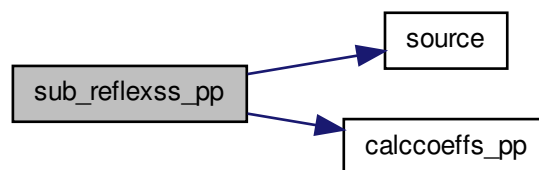
- subroutine [sub_reflexss_pp](#)

5.70.1 Function/Subroutine Documentation

5.70.1.1 subroutine `sub_reflexss_pp` ()

Definition at line 41 of file `sub_reflexss_pp.F90`.

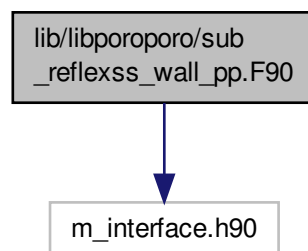
Here is the call graph for this function:



5.71 lib/libporoporo/sub_reflexss_wall_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_reflexss_wall_pp.F90`:



Functions/Subroutines

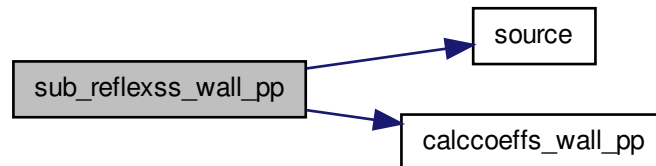
- subroutine [sub_reflexss_wall_pp](#)

5.71.1 Function/Subroutine Documentation

5.71.1.1 subroutine `sub_reflexss_wall_pp` ()

Definition at line 41 of file `sub_reflexss_wall_pp.F90`.

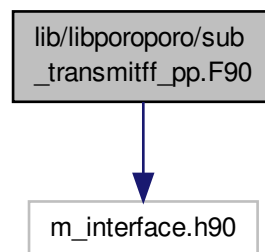
Here is the call graph for this function:



5.72 lib/libporoporo/sub_transmitff_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_transmitff_pp.F90`:



Functions/Subroutines

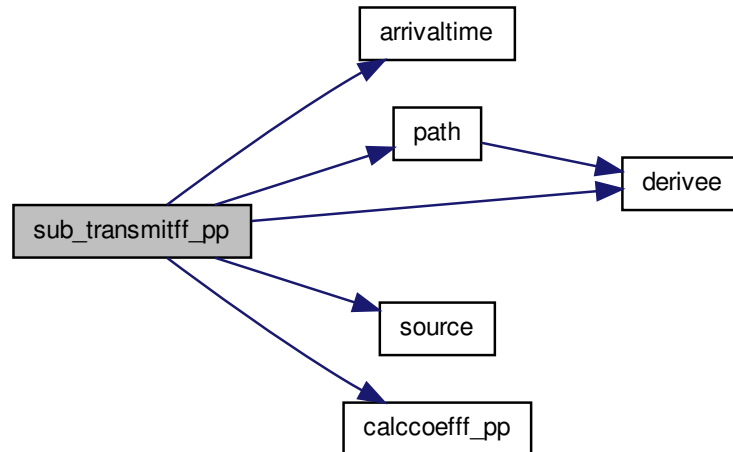
- subroutine [sub_transmitff_pp](#)

5.72.1 Function/Subroutine Documentation

5.72.1.1 subroutine `sub_transmitff_pp` ()

Definition at line 41 of file `sub_transmitff_pp.F90`.

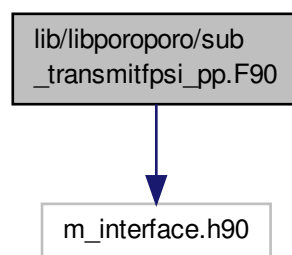
Here is the call graph for this function:



5.73 lib/libporoporo/sub_transmitfpsi_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_transmitfpsi_pp.F90`:



Functions/Subroutines

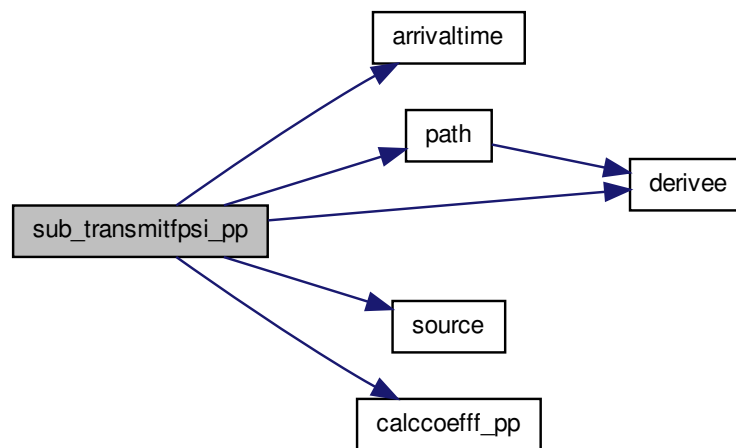
- subroutine [sub_transmitfpsi_pp](#)

5.73.1 Function/Subroutine Documentation

5.73.1.1 subroutine sub_transmitfpsi_pp ()

Definition at line 41 of file sub_transmitfpsi_pp.F90.

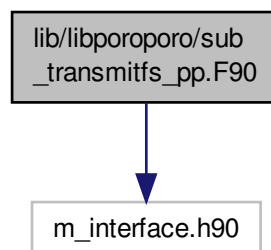
Here is the call graph for this function:



5.74 lib/libporoporo/sub_transmitfs_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitfs_pp.F90:



Functions/Subroutines

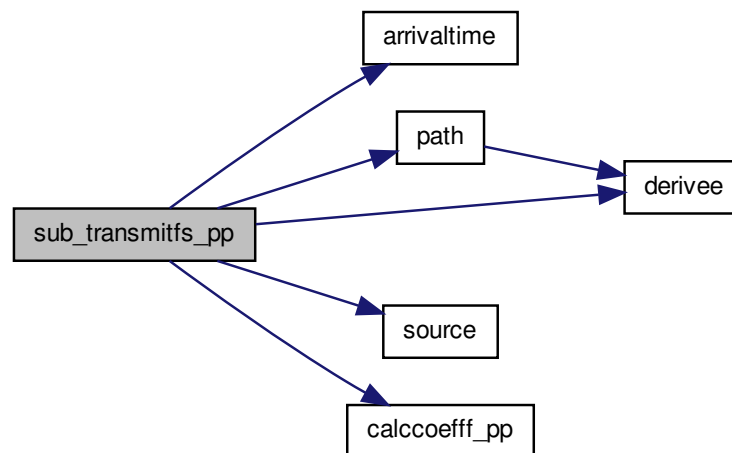
- subroutine [sub_transmitsf_pp](#)

5.74.1 Function/Subroutine Documentation

5.74.1.1 subroutine `sub_transmitsf_pp` ()

Definition at line 41 of file `sub_transmitsf_pp.F90`.

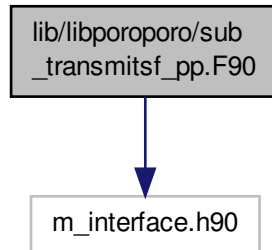
Here is the call graph for this function:



5.75 lib/libporoporo/sub_transmitsf_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitsf_pp.F90:



Functions/Subroutines

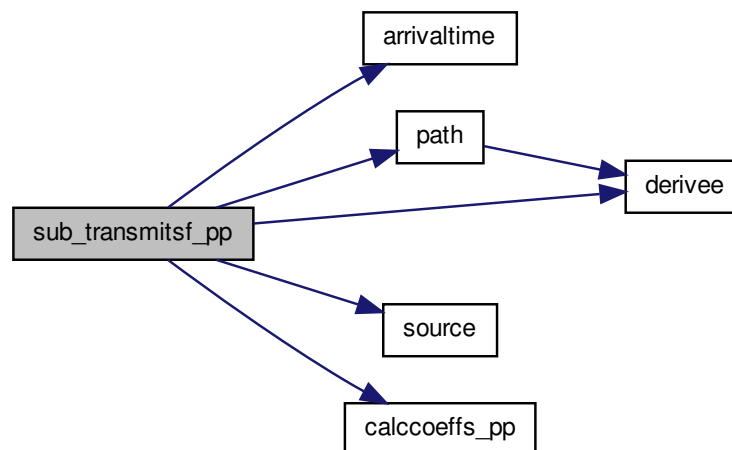
- subroutine [sub_transmitsf_pp](#)

5.75.1 Function/Subroutine Documentation

5.75.1.1 subroutine `sub_transmitsf_pp`()

Definition at line 41 of file sub_transmitsf_pp.F90.

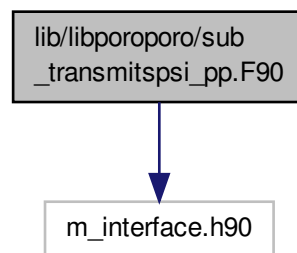
Here is the call graph for this function:



5.76 lib/libporoporo/sub_transmitspsi_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for sub_transmitspsi_pp.F90:



Functions/Subroutines

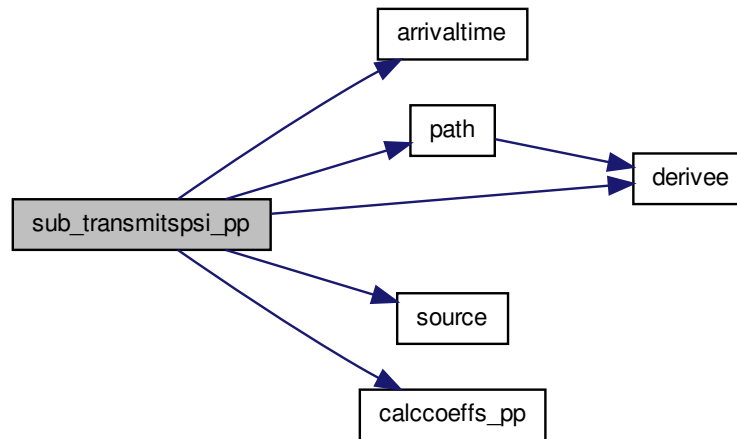
- subroutine [sub_transmitspsi_pp](#)

5.76.1 Function/Subroutine Documentation

5.76.1.1 subroutine `sub_transmitspsi_pp` ()

Definition at line 41 of file `sub_transmitspsi_pp.F90`.

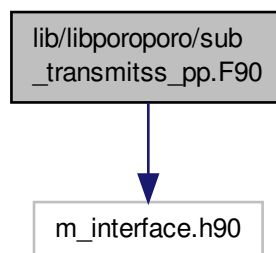
Here is the call graph for this function:



5.77 lib/libporoporo/sub_transmitss_pp.F90 File Reference

```
#include "m_interface.h90"
```

Include dependency graph for `sub_transmitss_pp.F90`:



Functions/Subroutines

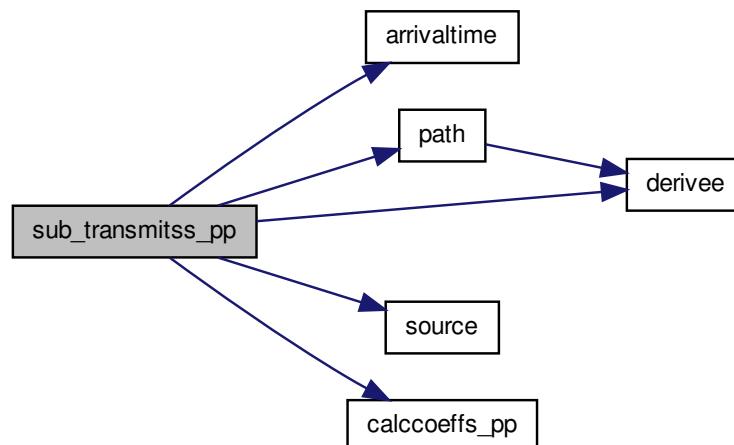
- subroutine [sub_transmitss_pp](#)

5.77.1 Function/Subroutine Documentation

5.77.1.1 subroutine sub_transmitss_pp ()

Definition at line 41 of file sub_transmitss_pp.F90.

Here is the call graph for this function:



5.78 mod/m_const.F90 File Reference

Data Types

- module [m_const](#)

5.79 mod/m_num.F90 File Reference

Data Types

- module [m_num](#)

5.80 mod/m_phys.F90 File Reference

Data Types

- module [m_phys](#)

5.81 mod/m_result.F90 File Reference

Data Types

- module [m_result](#)

5.82 mod/m_sismo.F90 File Reference

Data Types

- module [m_sismo](#)

5.83 mod/m_source.F90 File Reference

Data Types

- module [m_source](#)

5.84 README.dox File Reference

Bibliography

- [1] L. Cagniard. *Reflection and refraction of progressive seismic waves*. McGraw-Hill, 1962. [1](#)
- [2] A. T. de Hoop. The surface line source problem. *Appl. Sci. Res. B*, 8:349–356, 1959. [1](#)
- [3] J. Diaz. *Approches analytiques et numériques de problèmes de transmission en propagation d'ondes en régime transitoire. Application au couplage fluide-structure et aux méthodes de couches parfaitement adaptées*. PhD thesis, Université Paris VI-Pierre et Marie Curie, 2005. in french. [1](#)
- [4] J. Diaz and A. Ezziani. Analytical solution for wave propagation in stratified poroelastic medium. part I: the 2D case. Technical Report 6591, INRIA, 2008. [iii](#), [1](#), [5](#), [6](#)
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